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THESIS

A JOB SURVEY OF THE MANPOWER, PERSONNEL AND TRAINING ANALYSIS COMMUNITY IN RELATION TO THE NAVAL POSTGRADUATE SCHOOL CURRICULUM

by

Dixie Eileen Kopfler

and

Leda Beth Wingast

June 1985

Thesis Advisor: R. A. Weitzman

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The role of the Manpower, Personnel and Training Analysis (MPTA) subspecialist is becoming increasingly more important in the Navy, although not all MPTA billets are filled by subspecialists. This study surveyed both designated and non-designated subspecialist incumbents of MPTA billets by means of a questionnaire to ascertain whether the Naval Postgraduate School MPTA curriculum prepares its graduates adequately for the wide spectrum of manpower billets. The study considered specific areas of work, skills required to perform satisfactorily in the billets, the relationship of the Educational Skill Requirements of the NPS curriculum to the billet work requirements, and the perceived usefulness of required curriculum courses to billet incumbents. The key attitudinal response to the questionnaire was a need for specificity of institutional knowledge. Recommendations for course and curriculum content are offered as a result of the study.

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A Job Survey of the Manpower, Personnel and Training Analysis Community In Relation to the Naval Postgraduate School Curriculum

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The role of the Manpower, Personnel and Training Analysis (MPTA) subspecialist is becoming increasingly more important in the Navy, although not all MPTA billets are filled by subspecialists. This study surveyed both designated and non-designated subspecialist incumbents of MPTA billets by means of a questionnaire to ascertain whether the Naval Postgraduate School MPTA curriculum prepares its graduates adequately for the wide spectrum of manpower billets. The study considered specific areas of work, skills required to perform satisfactorily in the billets, the relationship of the Educational Skill Requirements of the NPS curriculum to the billet work requirements, and the perceived usefulness of required curriculum courses to billet incumbents. The key attitudinal response to the questionnaire was a need for specificity of institutional knowledge. Recommendations for course and curriculum content are offered as a result of the study.

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I. INTRODUCTION

Students in the Manpower, Personnel and Training Analysis (MPTA) curriculum at the Naval Postgraduate School often wonder and discuss among themselves whether the courses required in the curriculum truly prepare them for their future billets. As one means of determining the answer to this question, the authors undertook a survey of personnel serving in MPTA subspecialty -coded billets. The survey requested information concerning rank and primary subspecialty code, as well as billet and billet requirements. The survey design, implementation, and results will be discussed in later chapters, following a description of the Navy's subspecialty system, which will be referred to throughout the thesis.

A. THE SUBSPECIALTY SYSTEM

The Navy's current subspecialty system is an outgrowth and refinement of the work of the Daniel-Weakley Board of 1956 [Ref. 1]. This board was convened to study the Navy's postgraduate program, and it originated the procedure of assigning educational requirements to specific billets. Through the years, the assigning of subspecialty codes has grown into the current elaborate system.

This system is explained in detail in the Manual of Navy Officer Manpower and Personnel Classifications (NAVPERS 15839 E). As stated in the manual, " the officer subspecialty system is an integrated manpower and personnel classification and control system which establishes criteria and procedures for identifying officer requirements for advanced education, functional training, and significant experience in various fields and disciplines. Similarly, the subspecialty system is used to identify those officers who acquire these qualifications. In addition to identifying qualitative officer manpower needs, the subspecialty system is used as the basis for generating the Navy's advanced education and training program requirements." [Ref. 2: p. E-1]

All officers are assigned a designator which defines their general naval specialty. Examples of designators are 1110 (Surface Warfare), 1120 (Submarine Warfare), 1310 (Aviation), 2300 (Medical Service Corps), 2900 (Nurse Corps) and 1100 (General Unrestricted Line). The 1100 community is eighty-five per cent female. The subspecialty code, which is assigned in addition to the designator, defines the fields of application and additional education, experience, and training qualifications needed to satisfy special requirements that meet specific criteria of the subspecialty validation process. These subspecialty codes are applicable to the Unrestricted Line, Restricted Line, and Staff Corps. They are professional-development fields secondary to an officer's specialties and can be applied to either a billet or an individual.

Each subspecialty code is made up of five characters--four numerals and an alphabetic suffix. The code components are defined as follows:

1. First Subset (First and Second Characters):
    a) Unrestricted Line Requirements
        i) The Functional Field subspecialty codes, 20xx through 90xx, may be applied to URL officers and billets in the grades of LCDR to CAPT to indicate background experience in one of the functional fields. These codes are assigned as a result of selection board action.

        - ii) URL subspecialty billet requirements below the grade of LCDR are expressed by "00" entered in the first subset, i.e., 00xx.
    - b) Restricted Line and Staff Corps Requirements:
        - i) The first subset will be coded 00xx except for subspecialty fields considered unique to the Staff Corps.
        - ii) The unique Staff Corps subspecialty codes are:
            - 11xx - Civil Engineer
            - 12xx - Judge Advocate General
            - 13xx - Supply
            - 14xx - Chaplain
            - 15xx, 16xx - Medical
            - 17xx - Dental
            - 18xx - Medical Service
            - 19xx - Nurse

2. Second Subset (Third and Fourth Characters)
    - a) Unrestricted and Restricted Line Requirements
        - i) Codes xx10 through xx9x are used to express the broad or discrete Education/Skill fields as they are acquired by officers or required by billets.
    - b) Staff Corps Requirements
        - i) Describes the Education/Skill field within each of the unique Staff Corps subspecialties; must always be expressed in conjunction with the unique Staff Corps field code in the first subset.
3. Alphabetic Suffix (Fifth Character)
    - a) Unrestricted Line Requirements
        - i) The alphabetic suffix states the level of the education/skill pertaining to the field stated in the second subset.

ii) Proven subspecialist codes may be used to identify URL officers and requirements in the LCDR-CAPT grades. These must always be accompanied by one of the specific Functional Field codes in the first subset, and are assigned as a result of subspecialty selection board action.

b) Restricted line and Staff Corps Requirements

i) The alphabetic suffix states the level of education/skill pertaining to the field stated in the second subset. The Proven Subspecialist codes do not apply.

The subspecialty alphabetic suffixes pertinent to this thesis are defined as follows:

G ---Master's degree not fully meeting Navy criteria or graduate education at less than master's level

P ---Master's level of education

Q ---Master's level of education and proven subspecialist

R ---Significant experience and proven subspecialist

S ---Significant experience

T ---Billet code: denotes training billet which qualifies incumbent for an S-code

---Officer code: identifies students in Duty Under Instruction leading to the indicated subspecialty qualification

The Subspecialty Functional Field pertaining to this thesis is 90xx, which is the general Manpower-Personnel field. The pertinent Subspecialty Education/Skill Fields are denoted by xx33 (Manpower, Personnel, and Training Analysis) and xx36 (Manpower and Personnel Management, General) [Ref. 2: p. E-11]. The Deputy Chief of Naval Operations, Manpower, Personnel and Training, Total Force Training and Education Division (OP-11), is the sponsor for both Subspecialty Education/Skill Fields.

Examples of subspecialty codes found in this thesis are:

- 0033P ---Master's level in Manpower, Personnel, and Training Analysis
- 9033Q ---Proven Subspecialist; Master's level education in Manpower, personnel, and Training Analysis; experience in Manpower field
- 0036S ---Significant experience, Manpower - Personnel Management (General)

B. MOTIVATION

The Navy is currently increasing its emphasis on graduate education and on attaining a subspecialty. High-level Navy officials are speaking and writing constantly on the career importance of higher education. Examples include the first Manpower, Personnel, Training Newsletter, the recent study of the General Unrestricted Line Career Path, and numerous articles in publications such as Navy Times and The Naval Institute Proceedings.

As Vice Admiral William P. Lawrence, Chief of Naval Personnel, wrote in his introduction to the MPTA Newsletter:

> The role of a manpower subspecialist is becoming increasingly more important. The FY 85 budget calls for the Navy to spend in excess of $26 billion for Total Force Manpower. Defense dollars are becoming more scarce; competition from the private sector is increasing; and it is becoming more difficult to recruit, train, and retain our highest quality individuals. We must be able to prove to the Congress that the manpower dollars they give us will be spent in the most efficient manner. No longer is the expert opinion of the military hierarchy enough to win Congressional approval; it must be supported by facts. We look to our manpower "experts" to provide these facts and to ensure the Navy is recruiting, training, utilizing and retaining our personnel in the most efficient ways possible. [Ref. 3]

The General Unrestricted Line Career Path study was a joint NMPC/OPNAV venture that took place from 4 June through 16 October 1984. One of the major results of the study is the pending implementation of a split career path. This will be a two-track system, with some officers progressing through leadership billets and others spending the major portion of their career in their subspecialty area. Thus, especially for this second group of officers, postgraduate education and subspecialty attainment will be critical. At this time, many of the MPTA Subspecialists are General Unrestricted Line officers, as are the authors.

Interest in our own future career paths piqued our interest in the feeling current MPTA subspecialists have about their background, duties, and billets. This interest was further heightened by reading a recent (1984) NPS thesis by LCDR Daniel B. Summerall [Ref. 4]. His thesis listed each xx33P and xx33Q coded billet separately and indicated the subspecialty, designator, rank requirements, activity to which the billet is assigned, office phone number, immediate senior in the chain of command, and geographic location, along with a billet description. While this thesis provided us information as to what billets were available and where they were, with an official description, it told us nothing about how the officers in those billets felt about them or about their preparation for them.

Additionally, an NPS paper by LT M. A. Blaha and LCDR C. I. Bailey in March 1982 presented recommendations for courses that might more properly than now prepare officers at NPS for their future MPTA billets [Ref. 5]. Some of the recommendations concerned the curriculum, particularly the content area of the manpower economics courses. Blaha and Bailey referred to the Salzer Report of 1976, which apparently contained the rationale for the evolution of the MPTA curriculum. They were unable to locate it, as were we. It is infinitely regrettable that such a valuable source of information is no longer available. It would have been interesting to compare the rationale for curriculum content given in that report with the analytic needs of the Navy today, and also to compare the projected evolution of the curriculum to its current state.

It was these reasons that led us to survey personnel already serving in MPTA billets. The following chapters contain the methodology used, analytical results, recommendations, and conclusions. The appendices contain the survey itself (Appendix A), comments provided by respondents (Appendix B), and the current MPTA curriculum (Appendix C).

C. WASHINGTON INTERVIEWS

As part of the planning for this thesis, the authors included a trip to Washington, D.C. to interview those officials who are prime forces in the XX33 community and the direction of the MPTA curriculum. To this end, appointments were made with Dr. Richard Elster, Deputy Assistant Secretary of the Navy, Manpower and Reserve Affairs, and Rear Admiral Benjamin T. Hacker, Director, Total Force Training and Education Division (OP-11).

Prior to assuming his position as DASN, Dr. Elster was Chairman of the Administrative Sciences Department at NPS, of which the MPTA curriculum is a part. In his current position he is responsible for all Navy manpower policy formulation, for both active and reserve forces. Therefore, in view of his past and present experience, the authors felt that Dr. Elster would be an excellent source of expertise and knowledge about the XX33 community and the MPTA curriculum.

RADM Hacker, although relatively new to his current position, has had many manpower and personnel billets. His position, as sponsor of the XX33 community, is an extremely powerful one, as he oversees all aspects of the community and also has a great deal of input into what is taught in the MPTA curriculum. Therefore, he too was considered an excellent source of information.

1. The Interviews

The authors were impressed most favorably that both RADM Hacker and Dr. Elster made room for us in their busy schedules. The interest in and concern for the community displayed by both men were extremely encouraging and echoed the interest shown by the high survey response rate of the XX33 community members.

First to be interviewed was RADM Hacker. When asked what general direction he foresaw for the MPTA community, Admiral Hacker said he saw the community becoming more important as the Navy grows and as we try to accommodate growth in an environment of increasing technical proficiency. He sees the XX33 subspecialists' training contributing in a substantive manner to readiness in the most cost-effective manner possible. Additionally, he likened the MPTA subspecialists to a "cadre of professionals" whose expertise will grow as more people are added to the subspecialty and as those already in it become more experienced and senior.

The Admiral expects graduates of NPS to "be able to hit the decks running" by having the "state of the art" skills and knowledge required to properly use the tools of management in the policy arena. He feels the Navy can no longer afford the informal "seat of the pants" training previously obtained by most officers as they progressed through the ranks. He looks toward NPS graduates to engage the processes of regression analysis and other forms of statistical analysis with "knowledge, confidence, and a comfort" that non-NPS graduates would not have.

One matter of concern to Admiral Hacker is that only about 47 percent of current MPTA graduates go immediately from NPS to an XX33 coded billet. The others are officers with warfare specialties (1110, 1310, etc.) who return to their warfare communities for a full tour (two or three years) prior to beginning their XX33 payback tour. The "erosion of knowledge" suffered by this latter group of officers concerns the Admiral because he feels "the tools of management operate in a dynamic environment" and can become obsolete with non-utilization.

To counter this problem, Admiral Hacker feels that the ESRs (and thus the curriculum) should also apply to the operational environment. Having XX33 billets on the warfare staffs and platforms would allow the warfare specialist the opportunity to keep his or her MPTA skills honed while remaining current in their warfare specialty. Ideally, Admiral Hacker would like each MPTA graduate to go directly to an XX33 subspecialty coded billet, but he does not foresee this in the immediate future. However, he feels that attending NPS is still an investment in the future and that NPS graduates who have not gone directly to a subspecialty billet can relearn skills more quickly than someone without this background. Even so, the time lost in relearning skills is time lost to the Navy, and so eventually the Admiral wants all MPTA graduates to proceed directly to subspecialty coded billets.

Next, the authors interviewed Dr. Elster. His major concern is that the NPS curriculum provide MPTA graduates with a "professional orientation" which will more properly prepare the individual to perform well in any XX33 subspecialty coded billet. To achieve this, Dr. Elster was more concerned with which courses should be taught and with course content than with formal accreditation of NPS. He noted that the Harvard Business School is not accredited, but that they teach what their students need to know to succeed. He then likened this to the Postgraduate School, which he feels should meet the needs of the customer, in this case the Navy's manpower planning and policy departments.

Dr. Elster felt that more MPTA courses should be taught by "Washington familiar" instructors who have faced the actual requirements of the Washington scene and XX33 billets. The experience they could pass on to the MPTA students would be invaluable. (A step in this direction has already been taken with the addition of an XX33 instructor billet to the faculty of the Administrative Sciences Department.)

One of the courses Dr. Elster felt to be necessary is a course in organizational effectiveness. He feels this is important in helping to solve leadership problems and in turning people into productive workers. Also important to Dr. Elster is the speaking and writing ability of MPTA subspecialists. He feels that the better their presentation of themselves, the better the response to their work and the performance of the community.

Another goal Dr. Elster felt important was to "practice what we practice" by having courses in which students would put together a POM, manipulate and analyze data, etc. He felt it necessary that the students understand the organizational structure of OSD, the Navy Secretariat, OPNAV, and NMPC as well as the interrelationships among them. Also, students should become facile with personal computers, as most XX33 billets will involve the use of some type of computer and computer output.

Further topics Dr. Elster is concerned about, or would like to see taught, include the structure of enlisted occupations (ratings, NECs, etc.) and the trend toward specialization. He feels the curriculum should cover enlisted and officer recruiting, attrition, the quality-mix issue, selection and training (as done in the Navy), strength management (promotion and advancement planning), surveying and questionnaires, and the acquisition process. Further, he feels that NPS should teach a decriptive body of knowledge concerning the All Volunteer Force, mobilization issues, POM, manpower requirements, and exposure to the basic documents needed to fulfill the XX33 job requirements.

Underlying all the above areas should be basic courses in statistics, interpersonal communication, economics, and operations research. Dr. Elster did not feel the currently required accounting courses were particularly valuable to the MPTA student.

2. Interview Conclusions

Dr. Elster's and RADM Hacker's remarks appear to imply that the most important thing NPS can do is to teach the MPTA graduates the practical knowledge needed to quickly become successful and useful in their XX33 billets. They both desire NPS to be responsive to the needs of the community, and, in Dr. Elster's case, this responsiveness includes the possibility of doing away with accreditation.

Additionally, both emphasized the necessity of good analytic skills, which they appeared to feel were lacking in many current manpower subspecialists. Both deemphasized economics and accounting courses, except as bases for understanding the overall picture of Navy manpower.

It was encouraging to note the accord between the two men concerning the direction they would like to see taken by the community and the curriculum. Also enlightening to the authors was to see their own interest in the community mirrored by these highly placed officials who have so much influence over both the community and the curriculum. Both men were very positive about the future of the MPTA field and MPTA sub specialists.

II. METHODOLOGY

A. HYPOTHESIS

The hypothesis under consideration was whether the Manpower Personnel Training Analysis (MPTA) curriculum (number 847) at the Naval Postgraduate School is designed, within certain academic constraints, to prepare MPTA subspecialists to assume their billets. The authors believed the curriculum may not be sufficient to meet the Navy's needs. This belief grew during progression through the curriculum. Since both authors had, had Washington tours, as well as tours in manpower-related billets outside Washington, they believed they had a good idea as to what might be needed to perform successfully in an XX33 subspecialty-coded billet. Therefore, they had a vested interest in a curriculum that would prepare them to step into the role of an MPT analyst.

B. CONDUCT OF THE STUDY

The study was conducted through use of a questionnaire designed by the authors and presented in Appendix A. The questionnaire was mailed to all incumbents of XX33P, XX33Q, XX33R, and XX33S billets. A listing of officers in these billets, which included their rank, designator, primary and secondary officer subspecialty codes, as well as command to which assigned and the billet subspecialty code, was provided by the Manpower, Personnel and Training (MPT) Coordinator in OP-11. Funding for the printing and mailing of the questionnaire was provided by the Naval Postgraduate School.

The survey consisted of rating and ranking items in addition to questions requesting non-identifying personal information. No attempt was made to design the questionnaire so that returns could be matched against the mailing list. A package was mailed to each potential respondent with a cover letter, the questionnaire, and a pre-addressed return envelope. The first page of the questionnaire contained a request that an erroneously delivered package be forwarded to the correct person. (As will be noted later, this did not always happen.)

The cover letter was intended to provide the motivation for completion and return of the questionnaire. Its aim was to engender a sense of MPT community cohesiveness by suggesting that the survey's results might be beneficial in some way. It was the authors' desires, when taking on this project, that it would indeed be used to help correct any deficiencies in preparing MPT subspecialists at the Naval Postgraduate School. A contact autovon and commercial phone number for the researchers were provided in the cover letter for respondents who wished to clarify any aspect of the survey or just to discuss it in more depth.

We estimated that it would take a respondent at least 30 minutes to thoughtfully complete the questionnaire. The packages were mailed on 13 February 1985. All were individually addressed except for those sent to the Navy Manpower Engineering Center (NAVMEC) and the eight detachments (NAVMECDETs). Because these activities were so recently established (1984), the available information on their specific officer manning was incomplete.

Questionnaire returns began arriving within seven days. The majority, about 75%, were received within 14 days. A total of 97, out of 175, were received, but three were returned incomplete, so 94 are used as the basis of return accounting. With few exceptions, the returned questionnaires indicated that the respondents understood the intent of the questions.

C. THE SURVEY POPULATION

This survey included all officers who are serving in billets coded 0033P, 9033P, 9033Q, 9033R, 0033S, and 9033S. Although graduates of the NPS MPTA curriculum are given a 0033P code, with presumed later designation as 9033Q, incumbents of billets coded "R" and "S" were included to provide additional information regarding the subspecialty, especially since personnel are not assigned wholly according to a billet code/officer code match.

Not included in this survey were officers assigned to a total of nine billets coded XX33D, G, or H, although in retrospect they could have been. Also not included were any of the 62 0033T billets because, on the whole, those officers are quite junior and it was assumed they lacked enough experience to participate meaningfully.

Table I shows the distribution of grades, designators and billet subspecialty codes within the population of 175 billets to which surveys were mailed.

A listing of commands and activities that contain these billets is in Appendix D. Actual return rates are discussed in the next chapter. Comparison will show little correlation between billet subspecialty code and officer subspecialty code.

Since this study was designed to look at billets, officers holding XX33 primary or secondary subspecialty codes but not serving in similarly coded billets were not included. Survey of these officers might be a fruitful area for further research.

D. THE QUESTIONNAIRE

The questionnaire consisted of 10 non-identifying personal questions. These asked for rank, designator, primary and secondary subspecialty codes, billet code, and

TABLE I

Description of Survey Population

Rank	No.	Designator	No.	Code	No.
0-6	18	1000	119	0033P	61
0-5	59	1050	4	9033P	17
0-4	67	1110	13	9033Q	35
0-3	31	1120	6	9033R	23
		1300	14	0033S	26
		2000	6	9033S	12
		2300	12	6033P	1
		2900	1		

number of tours served in XX33-coded billets, in addition to undergraduate and graduate degree information and whether the respondent felt he or she was sufficiently prepared to serve in the current billet.

In order to ascertain what types of work areas officers are actually involved in, a list of 17 general areas, some with sub-areas listed, was provided. (See Appendix A.) Respondents were asked to rank up to five areas in descending order of importance to their job. They were also asked to choose between general and specific areas by choosing the most specific area or areas applicable. The list of work areas was drawn from Summerall's classification of billet areas [Ref. 4]. The authors also added other areas deemed relevant to the NPS MPTA curriculum.

As a follow-on to the work areas question, twenty-two skill areas that might be required throughout the MPTA billet structure were listed. (See Appendix A.)

Respondents were asked to determine the amount of skill required by their billet on a scale using ratings of None, Little, Some, or Lots. Some of these "skills" may have more appropriately been called "knowledges" or "practices".

Because of a forthcoming MPTA Curriculum Review, the authors were asked by the MPTA curriculum Academic Associate to include a set of specific questions of interest to the MPTA curriculum administration. Respondents were asked in the survey to rate how well the Educational Skill Requirements (ESRs) for the MPTA curriculum at NPS relate to their job. ESRs are functional objectives that describe those elements of the MPT subspecialty considered necessary to perform in a billet properly. ESRs are provided by the various curriculum sponsors in conjunction with NPS, forming the basis around which individual faculty members design the courses. The five-part rating scale used to determine how necessary each ESR is to an officer's present position was: 1) Not applicable; 2) Useful for background; 3) Useful some of the time; 4) Useful all of the time; 5) Essential. The ESRS are listed in Appendix A.

Respondents were asked to imagine (a) they were about to embark on the NPS MPTA curriculum today (whether they were graduates was not important) and (b) they had a crystal ball telling them that upon graduation they would be going back to the job they are in now. They were given a list of the 21 currently required courses (as of January 1985) and were asked to choose the five most useful and five least useful courses. The courses were described as they are in the school catalog [Ref. 6], although some descriptions had to be made more concise to be of comparable length with the others. Unfortunately, it is the authors' experience that not all courses are taught as described and so intent may not be matched in practice. Comments in Appendix B attest to this. Some of the respondents appeared to have given this question a great deal of thought as indicated by the individual rating efforts scribbled on the non-required return of the course descriptions appended to the questionnaire. Three of the respondents could not or would not attempt listing any of the most useful courses; six did not list any of the least useful courses.

E. PREPARATION FOR ANALYSIS

Analysis of the survey was accomplished using the SAS statistical programs computer package. Responses were coded numerically, in the case of scalar-answered questions, or input as is, particularly for categories such as subspecialty codes, designator, or rankings of work areas and courses. The basic data preparation steps are shown in Appendix E. These steps made it possible to perform operations on subsets of the responses.

III. SURVEY RESULTS

A. REPORTED FREQUENCIES

This section reports the frequencies of the responses to the questions in the survey. There were 94 questionnaires returned that were sufficiently complete to be included in the findings. Every respondent did not answer every question.

1. Demographic and Non-identifying Personal Data

Because this information is self-reported, there may be errors that are not identifiable.

a. Rank

Table II displays respondents' reported ranks. Some of the officers may be "frocked"; they presumably reported the rank to which frocked, as opposed to actual pay grade.

TABLE II

Rank

RANK	GRADE	NUMBER	PERCENT
Captain	O-6	13	14
Commander	O-5	34	36
Lieutenant Commander	O-4	33	35
Lieutenant	O-3	14	15

b. Designator

Table III displays respondents' reported designators. Those designators ending in "5" signify a Reserve officer; those ending "7" signify an officer involved in Training and Administration of Reserves (TAR).

TABLE III

Designator

DESIGNATOR	FREQUENCY	PERCENT
1100	16	17
1105	1	1
1110	28	30
1115	1	1
1117	1	1
1120	2	2
1300	1	1
1310	18	19
1317	2	2
1320	11	12
2300	6	6
2900	6	6
not reported	1	1

c. Primary Officer Subspecialty Code

The primary officer subspecialty codes (noted as "Sub1 codes" for this study) reported by the respondents are listed in Table IV. Of the sixteen who reported 0033P as the primary code, two were not NPS graduates. The three designated as 9033P and the two designated as 9033Q were graduates of the MPTA curriculum.

d. Secondary Officer Subspecialty Code

Table V lists the secondary officer subspecialty codes (noted as "Sub2 codes" for this study) awarded to the respondents. Officers less frequently attain these than the primary code.

e. Billet Code

Although this survey was specifed for officers serving in XX33 coded billets, five officers in xx36 coded billets also responded. The general Personnel Management subspecialty (XX36) is being disestablished. Those billets are under review to determine how they should be recoded; it is anticipated the majority will be coded XX33.

Table VI lists the billet codes of the respondents, five of whom did not know which source to use to determine their billet code. The authors found this aspect most interesting since, of all people, individuals in this area should be aware of billet coding practices.

f. Number of Tours

Seventy percent of the respondents had no previous experience in XX33 billets (see Table VII), although a number indicated they had worked in allied personnel fields. The authors found it questionable that one officer has served five tours in the explicit MPT arena; it was surmised that he possibly included the general personnel field in answering this question. The question was phrased "I have served ___ tours in addition to this current one in XX33 coded billets."

TABLE IV

Primary Officer Subspecialty Code

SUB1	NUMBER	PERCENT	SUB1	NUMBER	PERCENT
0000P	1	1	1800E	1	1
0023G	1	1	1800P	3	3
0025F	1	1	1910P	1	1
0026G	1	1	2010P	1	1
0031P	1	1	3016S	1	1
0031Q	1	1	4044R	4	4
0033G	1	1	4044S	2	2
0033P	16	17	9033F	1	1
0033S	4	4	9033P	3	3
0036F	1	1	9033Q	2	2
0036G	2	2	9033S	2	2
0036P	1	1	9036F	2	2
0036Q	1	1	9036G	1	1
0036R	1	1	9036Q	5	6
0036S	2	2	9036R	4	4
0038G	1	1	9036S	3	3
0042S	1	1	9133R	1	1
0053G	2	2	9137S	1	1
0800S	1	1	9999X	16	17

NOTE: 9999x signifies the respondent does not have a SUB1 or does not know if one is assigned.

TABLE V

Secondary Officer Subspecialty Code

SUB2	NUMBER	PERCENT	SUB2	NUMBER	PERCENT
0000P	1	1	1945S	2	2
0031G	1	1	1961E	1	1
0033S	2	2	4042P	1	1
0036G	1	1	4044S	1	1
0036S	4	4	4054S	1	1
0037S	1	1	5045S	1	1
0038G	1	1	9033G	1	1
0044S	3	3	9033R	1	1
0054S	1	1	9033S	2	2
0091S	1	1	9036R	1	1
0808S	1	1	9036S	1	1
1814P	1	1	9037S	1	1
1900P	1	1	9095S	1	1
1906S	1	1	9999X	59	63

NOTE: 9999x signifies the officer does not have a SUB2 or does not know if one is assigned

g. Preparation and Education

In stating what type of school awarded their undergraduate degree, 13 were graduates of a service academy, 79 were graduates of a civilian university, and two did not respond. The fields of study ranged from engineering to Italian literature.

TABLE VI

Billet Code

BCODE	NUMBER	PERCENT
0033P	37	40
0033Q	3	3
0033R	3	3
0033S	15	16
0036P	2	2
0036Q	1	1
0036S	1	1
9033P	6	6
9033Q	17	18
9033R	1	1
9033S	2	2
9036P	1	1
Not known	5	6

Twenty-four of the respondents (26%) were graduates of the Naval Postgraduate School. All but five completed the MPTA curriculum; four took the now-defunct general Personnel/Management course, and one graduated from the Operations Analysis curriculum. Thirty-four (36%) received graduate degrees from civilian universities in a wide-ranging spectrum of fields. Of the officers with advanced degrees, seven had more than one graduate degree or other degree above bachelor's level. Thirty-five had only a bachelor's degree, and one officer did not state level of education.

TABLE VII

Number of Tours

PREVIOUS TOURS	NUMBER	PERCENT
0	66	70
1	18	19
2	7	8
3	2	2
5	1	1

Asked whether they felt sufficiently prepared for their current billet, whether by prior experience, education or a combination of the two, 58 (62%) of the respondents stated they were, 24 (26%) stated they were not, and 12 (13%) declined to state.

2. Work Areas of the MPTA Subspecialty

This section shows how the respondents ranked their areas of work by how the areas apply to their current billet. Given the list of potential work areas (shown in Figure 3.1), they were asked to choose no more than five and rank them in descending order. The frequency tabulations in Figure 3.1 display how many times each work area was chosen as first most important, second most important, etc., to fifth most important.

Table VIII is a listing of the work areas in the order of total number of points awarded. This format does not allow for the grouping of general areas with their more specfic area(s).

AREAS: GENERAL AND SPECIFIC	1st	2nd	3rd	4th	5th
1.0 Manpower policy analysis	6	14	6	3	6
1.1 Evaluation of readiness	0	0	1	1	1
1.2 Determination of personnel quality requirements	3	7	6	1	4
2.0 Manpower planning	11	2	5	2	2
2.1 Total Force requirements determination	9	5	6	4	0
2.2 Training requirements determination	1	5	5	5	2
2.3 Billet analysis/classification	0	6	2	4	1
2.4 Manpower forecasting	4	8	8	6	3
2.5 Career progression policy development	1	2	2	1	2
3.0 Economic market analysis	0	1	1	4	1
4.0 Budget analysis/preparation	2	8	7	4	4
5.0 Financial analysis/estimation	1	2	3	2	4
6.0 Military compensation	5	0	0	0	3
7.0 Job design and analysis	2	3	0	2	2
7.1 Task analysis	4	3	4	1	0
7.2 Billet classification	0	1	4	2	1
7.3 Human factors engineering	0	0	0	3	1
7.4 Capital-labor substitution	0	0	0	0	1
8.0 Manpower engineering	5	2	3	4	0
8.1 Ship manning documentation	3	0	3	3	1
8.2 Squadron manning documentation	4	2	1	1	1
8.3 Shore manning documentation	9	3	1	1	3
8.4 Military-civilian substitution	0	0	2	1	2
9.0 Recruiting	1	0	0	1	3
10.0 Selection and classification	1	0	1	3	0
11.0 Personnel testing and test use	1	2	0	0	1
12.0 Detailing/assignment/placement	3	0	3	2	0
13.0 Management of training	1	2	3	1	0
13.1 Training programs development	0	1	2	0	0
13.2 Training equipment acquisition	0	0	1	2	0
13.3 Training contract monitoring	0	0	0	0	0
14.0 Personnel training	1	1	0	1	5
14.1 Officer graduate education	4	0	1	0	0
14.2 Officer training	1	2	1	4	0
14.3 Enlisted training	2	2	0	0	0
14.4 Civilian education or training	0	0	0	0	0
15.0 Performance evaluation	1	1	0	1	1
15.1 Performance evaluation of officers	0	1	1	1	2
15.2 Performance evaluation of enlisted personnel	0	0	1	0	1
15.3 Performance evaluation of civilian personnel	0	0	0	0	0
16.0 Mobilization	2	1	0	2	2
17.0 Management information systems	3	3	3	7	9

Figure 3.1 Areas of Work.

TABLE VIII

Summary of Areas of Work

CODE	WORK AREA	No.
1.0	Manpower policy analysis	35
2.4	Manpower forecasting	29
4.0	Budget analysis/preparation	25
17.0	Management information systems	25
2.1	Total Force requirements determination	24
2.0	Manpower planning	22
1.2	Determination of personnel quality requirements	21
2.2	Training requirements determination	18
8.3	Shore manning documenation	17
8.0	Manpower engineering	14
2.3	Billet analysis/classification	13
5.0	Financial analysis/estimation	12
7.1	Task analysis	12
8.1	Ship manning documentation	10
7.0	Job design and analysis	9
8.2	Squadron manning documentation	9
2.5	Career progression policy development	8
6.0	Military compenstion	8
7.2	Billet classification	8
12.0	Detailing/assignment/placement	8
14.0	Personnel training	8
14.2	Officer training	8
3.0	Economic market analysis	7
13.0	Management of training	7
16.0	Mobilization	7
8.4	Military-civilian substitution	5
9.0	Recruiting	5
10.0	Selection and classification	5
14.1	Officer graduate education	5
15.1	Performance evaluation of officers	5
7.3	Human factors engineering	4
11.0	Personnel testing and test use	4
14.3	Enlisted training	4
15.0	Performance evaluation	4
1.1	Evaluation of readiness	3
13.1	Training programs devlopment	3
13.2	Training equipment acquistion	3
15.2	Performance evaluation of enlisted personnel	2
7.4	Capital-labor substitution	1
3.3	Training contract monitoring	0
4.4	Civilian education or training	0
5.3	Performance evaluation of civilian personnel	0

3. Skills Required in the Current Billet

This section asked respondents to determine how much a particular skill might be required in their current billet. Some of these are not "skills" per se, but may more precisely be called "practices" or "knowledge". The response to each rating is given, along with rounded percentages in parentheses. By assigning numerical values to each rating (none=1, little=2, some=3, lots=4) each skill can be given a mean score and standard deviation. For example, Skill number one, Technical writing, has a mean score of 2.51, which places it halfway between "little" and "some" for the aggregate amount of time devoted to it. Its standard deviation is 1.00. The standard deviation is a measure of spread from the average value of a group of numerical data [Ref. 7: p. 64]. Table IX ranks the skills in descending order of mean score attained.

The responses were as follows:

Technical writing:

None - 18 (.19)   Little - 27 (.29)
Some - 32 (.34)   Lots - 17 (.18)

Market analysis:

None - 62 (.66)   Little - 15 (.16)
Some - 13 (.14)   Lots - 4 (.04)

Manual statistical analysis:

None - 11 (.11)   Little - 33 (.35)
Some - 32 (.34)   Lots - 18 (.19)

Computer-based statistical analysis:

None - 11 (.11)   Little - 21 (.22)
Some - 38 (.40)   Lots - 24 (.26)

Navy correspondence:

None - 1 (.01)   Little - 3 (.03)
Some - 21 (.22)   Lots - 69 (.74)

Legislative correspondence:

None - 42 (.45)   Little - 23 (.24)
Some - 18 (.19)   Lots - 11 (.11)

Data collection:

None - 9 (.09)   Little - 16 (.17)
Some - 27 (.29)   Lots - 42 (.45)

Job analysis:

None - 30 (.32)   Little - 24 (.26)
Some - 21 (.22)   Lots - 19 (.20)

Personnel survey development and administration:

None - 61 (.65)   Little - 21 (.22)
Some - 7 (.07)   Lots - 5 (.05)

Personnel test development and use:

None - 78 (.83)   Little - 13 (.14)
Some - 3 (.03)   Lots - 0

Financial management:

None - 30 (.32)   Little - 25 (.26)
Some - 29 (.31)   Lots - 10 (.11)

Education and training development:

None - 32 (.34)   Little -33 (.35)
Some - 20 (.21)   Lots - 9 (.10)

POM/PPBS/Budget preparation and analysis:

None - 20 (.21)   Little - 14 (.15)

Some - 24 (.26) Lots - 36 (.38)

Management information systems development and use:

None - 16 (.17) Little - 19 (.20)
Some - 35 (.37) Lots - 24 (.26)

Computer programming:

None - 44 (.47) Little - 26 (.28)
Some - 13 (.14) Lots - 11 (.11)

Computer manpower modeling:

None - 31 (.33) Little - 24 (.26)
Some - 23 (.24) Lots - 16 (.17)

Microcomputer use:

None - 21 (.22) Little - 21 (.22)
Some - 31 (.33) Lots - 21 (.22)

Organizational system design:

None - 35 (.37) Little - 26 (.28)
Some - 25 (.27) Lots - 8 (.08)

Contract negotiation:

None - 68 (.72) Little - 14 (.15)
Some - 7 (.07) Lots - 5 (.05)

Research design:

None - 64 (.68) Little - 14 (.15)
Some - 14 (.15) Lots - 2 (.02)

Operations analysis:

None - 45 (.48) Little - 31 (.33)
Some - 13 (.14) Lots - 5 (.05)

Econometric analysis:

None - 61 (.65)   Little - 19 (.20)
Some - 11 (.12)   Lots - 3 (.03)

4. Educational Skill Requirements

As stated previously, the Educational Skill Requirements form the basis of the MPTA curriculum at the Naval Postgraduate School. This section asked respondents to determine how necessary the Educational Skills Requirements are to their particular billets. The response to each rating is given along with rounded percentages in parentheses. By assigning numerical values to each rating (Not applicable=1, Useful for background=2, Useful some of the time=3, Useful all of the time=4, Essential=5) each ESR can be given a mean score and standard deviation. For example, Educational Skill Requirement number 1 has a mean score of 3.73 which places it between "Useful some of the time" and "Useful all of the time." Table X ranks the ESRs in the descending order of mean skill attained

The ESRs and the ratings given them follow:

1. The officer must have a thorough knowledge of basic management principles, fundamentals, and functions, both classical and contemporary.

Not applicable - 1 (.01)
Useful for background - 18 (.19)
Useful some of the time - 16 (.17)
Useful all of the time - 29 (.31)
Essential - 30 (.32)

2. The officer must have a broad, general knowledge of the basic management functional applications (e.g., finance, manpower, personnel).

Not applicable - 1 (.01)
Useful for background - 10 (.11)
Useful some of the time - 14 (.15)
Useful all of the time - 37 (.39)
Essential - 32 (.34)

3. The officer must have a general knowledge of management information systems and their potential for effective use in the Navy, including an understanding of current and proposed resources such as manpower data bases and the organizational relationships of those resources to manpower, personnel and training organizations.

TABLE IX
Skills Ranked by Mean Score

RANKING	SKILL	MEAN	SD
1	Navy correspondence	3.68	0.60
2	Data collection	3.09	1.00
3	POM/PPBS/budget analysis	2.81	1.17
4	Computer-based statistics	2.71	0.96
5	Management information systems	2.70	1.03
6	Manual statistical analysis	2.61	0.93
7	Microcomputer use	2.55	1.07
8	Technical writing	2.51	1.00
9	Job analysis	2.31	1.13
10	Computer manpower modeling	2.26	1.10
11	Financial management	2.20	1.01
12 t	Education and training development	2.06	0.98
12 t	Organizational system design	2.06	1.00
13	Legislative correspondence	1.98	1.06
14	Computer programming	1.90	1.04
15	Operations analysis	1.77	0.89
16	Market analysis	1.56	0.89
17 t	Personnel survey development and use	1.53	0.86
17 t	Econometrics	1.53	0.83
18	Research design	1.51	0.83
19	Contract negotiation	1.46	0.85
20	Personnel test development and use	1.20	0.48

SD = standard deviation
t = tied ranking

Not applicable - 1 (.01)
Useful for background - 7 (.07)
Useful some of the time - 16 (.17)
Useful all of the time - 39 (.41)
Essential - 31 (.33)

4. The officer must have a basic familiarity with computer programming techniques and software development principles.

Not applicable - 6 (.06)
Useful some for background - 45 (.49)
Useful some of the time - 21 (.22)
Useful all of the time - 12 (.13)
Essential - 10 (.11)

5. The officer must have a basic understanding of the systems analysis processes, to include a thorough knowledge of problem solving, decision making models, and the conduct of cost/benefit analysis.

Not applicable - 6 (.06)
Useful for background - 21 (.22)
Useful some of the time - 31 (.33)
Useful all of the time - 21 (.22)
Essential - 15 (.16)

6. The officer must have a working knowledge of quantitative techniques (e.g., expected value, queuing theory) appropriate for management analysis.

Not applicable - 22 (.23)
Useful for background - 36 (.38)
Useful some of the time - 21 (.22)
Useful all of the time - 11 (.12)
Essential - 4 (.04)

7. The officer must exhibit a working knowledge of organizations in action including an appreciation of the rational bureaucratic and political models of organization.

Not applicable - 9 (.10)
Useful for background - 20 (.21)
Useful some of the time - 19 (.20)
useful all of the time - 28 (.30)
Essential - 18 (.19)

8. The officer must exhibit a broad, general knowledge of the social sciences as they apply to the behavior of individuals, groups, and organizations in the Navy including an understanding of the interpersonal communications, power relationships, and individual and group values as they affect organizational action.

Not applicable - 12 (.13)
Useful for background - 32 (.34)
Useful some of the time - 16 (.17)
Useful all of the time - 17 (.18)
Essential - 17 (.18)

9. The officer must exhibit an understanding of defense resource allocation methodology, procedures, and organizational relationships as currently incorporated in the

Planning, Programming and Budget System (PPBS). Included should be familiarity with the FYDP, CPAMS, PSD, POM; and the roles of resource, assessment and mission sponsors and of major budget claimants.

Not applicable - 6 (.06)
Useful for background - 11 (.12)
Useful some of the time - 20 (.21)
Useful all of the time - 19 (.20)
Essential - 38 (.40)

10. The officer must be familiar with planning models which use techniques such as linear programming, regression analysis, and simulation, be able to communicate effectively about these models, and employ them in the planning and programming processes.

Not applicable - 13 (.14)
Useful for background - 25 (.26)
Useful some of the time - 29 (.31)
Useful all of the time - 17 (.18)
Essential - 10 (.11)

14. When developing, promoting, implementing and assessing manpower, personnel or training management policies, the officer must weigh their long and short term impacts on Navy programs, fleet readiness, other components of the Total Force, and on planning variables such as end strengths, accession demands, force levels, and training pipeline management.

Not applicable - 7 (.07)
Useful for background - 13 (.14)
Useful some of the time - 19 (.20)
Useful all of the time - 24 (.25)
Essential - 31 (.33)

15. The officer must have an historical perspective of the manpower, personnel, and training management since World War II.

Not applicable - 18 (.19)
Useful for background - 56 (.60)
Useful some of the time - 9 (.10)
Useful all of the time - 8 (.09)
Essential - 3 (.03)

16. When developing, promoting, implementing and assessing manpower, personnel, or training management policies, the officer must understand the complex interrelationships which exist among MPT systems components and the potential impact of policy change on the retention, productivity, job satisfaction, and loyalty of Navy personnel.

Not applicable - 11 (.11)
Useful for background - 21 (.22)
Useful some of the time - 16 (.17)
Useful all of the time - 23 (.24)
Essential - 23 (.24)

17. The officer must be familiar with the econometrics of strenghth planning for both first term and career personnel.

Not applicable - 25 (.27)

Useful for background - 36 (.38)
Useful some of the time - 13 (.14)
Useful all of the time - 10 (.11)
Essential - 10 (.11)

18. The officer must be exposed to OPNAV standard operating procedures for development of policy and policy changes including the research, analysis, and presentation (e.g., oral, memorandum, point paper) of these policies.

Not applicable - 7 (.07)
Useful for background - 7 (.07)
Useful some of the time - 18 (.19)
Useful all of the time - 27 (.29)
Essential - 35 (.37)

19. The officer must have a knowledge of the policies, procedures, and organizational structure that affect manpower, personnel, training, and training device research and development and studies management.

Not applicable - 6 (.06)
Useful for background - 22 (.23)
Useful some of the time - 25 (.27)
Useful all of the time - 27 (.29)
Essential - 14 (.15)

5. Choices of Curriculum Requirements

This section asked respondents to determine what current MPTA required curriculum offerings would be the five most useful and the five least useful to their jobs. The respondents selected these courses from brief descriptions provided in the questionnaire. The courses were based on the curriculum as it stood in January 1985; it is continually being modified. The courses and the actual numbers who ranked each are as follow:

A. Financial Accounting (MN 2150)

Most useful		Least useful	
1.	1	1.	40
2.	2	2.	6
3.	0	3.	6
4.	0	4.	1
5.	0	5.	3

B. Economic Decision Making (MN 2031)

Most useful Least useful

TABLE X
ESRS Ranked by Mean Score

RANKING	ESR and DESCRIPTION	MEAN	SD
1	3 - MIS	3.98	0.96
2	2 - Management applications	3.96	1.01
3	18 - OPNAV SCP	3.81	1.23
4	9 - Defense resource applications	3.77	1.28
5	1 - Management principles	3.73	1.14
6	14 - Personnel policies	3.63	1.28
7	16 - Interrelationships	3.32	1.48
8	12 - Personnel management	3.30	1.27
9	7 - Organizations in action	3.28	1.27
10	11 - Changing Navy requirements	3.26	1.24
11	19 - Affecting policies	3.22	1.16
12	5 - Systems analysis	3.19	1.15
13	13 - Industrial engineering	3.06	1.41
14	8 - Social sciences	2.95	1.33
15	10 - Planning models	2.85	1.19
16	4 - Computer techniques	2.73	1.11
17	6 - Quantitative techniques	2.35	1.09
18	17 - Econometrics	2.40	1.28
19	15 - Historical perspective	2.17	0.95

SD = standard deviation

1.	0	1.	6
2.	1	2.	21
3.	0	3.	6
4.	2	4.	3
5.	1	5.	3

C. Manpower Analysis (MN 3111)

Most useful		Least useful	
1.	23	1.	0
2.	10	2.	0
3.	7	3.	1
4.	4	4.	0
5.	9	5.	0

D. Mathematics for Management (MA 2300)

Most useful		Least useful	
1.	1	1.	9
2.	0	2.	5
3.	2	3.	6
4.	0	4.	5
5.	0	5.	3

E. Managerial Accounting (MN 3161)

Most useful		Least useful	
1.	1	1.	2
2.	0	2.	15
3.	0	3.	11
4.	2	4.	5
5.	0	5.	3

F. Microeconomic Theory (MN 3140)

Most useful		Least useful	
1.	2	1.	5
2.	1	2.	8
3.	0	3.	8
4.	2	4.	13
5.	0	5.	5

G. Organizational Systems (MN 3105)

Most useful		Least useful	
1.	4	1.	4
2.	6	2.	0
3.	1	3.	3
4.	0	4.	2
5.	10	5.	1

H. Statistical Analysis for Management I (OS 3105)

Most useful		Least useful	
1.	3	1.	3
2.	6	2.	3
3.	3	3.	6
4.	3	4.	3
5.	2	5.	3

I. Public Policy Process (MN 3172)

Most useful		Least useful	
1.	6	1.	0
2.	7	2.	6
3.	6	3.	3
4.	6	4.	4
5.	7	5.	2

J. Manpower Economics I (MN 3760)

Most useful		Least useful	
1.	1	1.	4
2.	2	2.	3
3.	1	3.	8
4.	0	4.	5
5.	1	5.	7

K. Managerial Communications Skills (MN 3333)

Most useful		Least useful	
1.	5	1.	1
2.	9	2.	2
3.	10	3.	3

4.	7	4.	2
5.	3	5.	3

L. Statistical Analysis for Management II (OS 3106)

Most useful		Least useful	
1.	3	1.	2
2.	3	2.	3
3.	8	3.	4
4.	10	4.	2
5.	6	5.	2

M. Manpower Economics II (MN 4761)

Most useful		Least useful	
1.	0	1.	1
2.	2	2.	3
3.	6	3.	5
4.	5	4.	4
5.	0	5.	2

N. Manpower Requirements Determination (OS 3702)

Most useful		Least useful	
1.	17	1.	0
2.	8	2.	1
3.	13	3.	2
4.	7	4.	1
5.	1	5.	5

O. Multivariate Manpower Data Analysis (MN 4110)

Most useful		Least useful	
1.	0	1.	5
2.	4	2.	1
3.	1	3.	5
4.	2	4.	9
5.	6	5.	7

P. Operations Research for Management (OS 3006)

Most useful		Least useful	

1.	3	1.	1
2.	2	2.	3
3.	4	3.	0
4.	4	4.	8
5.	1	5.	6

Q. Job Analysis and Personnel Training (MN 4117)

Most useful		Least useful	
1.	5	1.	2
2.	3	2.	1
3.	3	3.	4
4.	3	4.	9
5.	0	5.	3

R. Manpower Personnel Policy Analysis (MN 4106)

Most useful		Least useful	
1.	7	1.	0
2.	10	2.	1
3.	5	3.	2
4.	9	4.	1
5.	9	5.	0

S. Manpower and Personnel Models (OS 4701)

Most useful		Least useful	
1.	5	1.	0
2.	5	2.	0
3.	9	3.	0
4.	7	4.	0
5.	9	5.	4

T. Management Policy (MN 4105)

Most useful		Least useful	
1.	0	1.	1
2.	6	2.	5
3.	6	3.	3
4.	6	4.	1
5.	2	5.	7

U. Management Information Systems (IS 3183)

Most useful		Least useful	
1.	4	1.	2
2.	4	2.	1
3.	6	3.	1
4.	12	4.	2
5.	19	5.	4

Table XI is a summary of how each course was selected for its perceived potential usefulness. It is presented in descending order of the total points given to each course. Again, total points were "awarded" by adding up the total number of times the course was selected as being any of the five most useful.

Table XII is a summary of how each course was selected for its perceived potential lack of usefulness. It is presented in descending order of the total points given to each course. Total points were "awarded" by adding up the total number of times the course was selected as being any of the five least useful.

B. FREQUENCIES OF XX33P AND XX33Q RESPONDENTS

The MPTA curriculum leads to the awarding of a 0033P subspecialty code, which may later be "upgraded" by formal board action to 9033P or 9033Q. The latter identifies significant experience gained following a tour in which the postgraduate degree is used initially. Therefore, a look at how the MPTA graduates reported their impressions and considerations is an essential part of this thesis.

As noted in the previous discussion, nineteen survey respondents indicated they were NPS MPTA graduates. Additionally, two officers reported they each held a 0033P primary subspecialty code but were graduates of civilian universities. Because of the Navy's postgraduate education

TABLE XI

Summary of Courses Considered Most Useful

COURSE	NUMBER
MN 3111	53
OS 3702	46
IS 3183	45
MN 4106	40
OS 4701	35
MN 3333	34
MN 3172	32
OS 3106	30
MN 3105	21
MN 4105	20
OS 3105	17
OS 3006	14
MN 4117	14
MN 4761	13
MN 4110	13
MN 3140	5
MN 3760	5
MN 2031	4
MN 2150	3
MN 2300	3
MN 3161	3

TABLE XII

Summary of Courses Considered Least Useful

COURSE	NUMBER
MN 2150	56
MN 2031	39
MN 3140	39
MN 3161	36
MA 2300	28
MN 3760	27
MN 4110	27
MN 4117	19
OS 3105	18
OS 3006	18
MN 4105	17
MN 3172	15
MN 4761	15
OS 3106	13
MN 3333	11
MN 3105	10
IS 3183	10
OS 3702	9
MN 4106	4
OS 4701	4
MN 3111	1

policies, their courses of study had to be similar to that of the NPS curriculum in order to be awarded that particular code; therefore, the two are included in this section's results of findings. For ease of identificaiton, the 21 respondents will be referred to as "XX33s."

1. XX33 Demographics

This group includes five lieutenants, eight lieutenant commanders, and eight commanders. Two of the commanders were the non-NPS graduates. It is a relatively inexperienced group in the field of manpower; 17 had no prior experience, three had one previous tour, and only one had more than one previous tour. However, this group has quite a bit of Navy experience and is more senior overall than the total respondent population.

Their designators vary: four are designated as 1100 (General Unrestricted Line); seven as 1110 (Surface Warfare); three as 1310 (Naval Aviator); one as 1320 (Naval Flight Officer); one as 2300 (Medical Service Corps); and five as 2900 (Nurse Corps). Ten of these subspecialists did not have secondary officer subspecialty codes. Five in the health care fields had health-related secondary subspecialty (Sub2) codes. Of the line officers, one had a 0036S Sub2 code in general manpower and personnel management, one had a 0037S Sub2 code in education and training management, one had a 0044S Sub2 code in anti-submarine warfare, and two held Sub2 codes in naval/mechanical engineering.

For the most part, among this group there was a good primary officer subspecialty code and billet code match. They encumbered fourteen 0033P billets, one 9033P billet, two 0033Q billets, and one 0033R billet. One was in a 0036P billet, and two did not report their billet code.

2. Work Areas of XX33s

The types of work this group performed is shown in Figure 3.2. It is of the same format as Figure 3.1. One respondent did not report any areas of work, so this figure is based on 20 respondents.

The information in Figure 3.2 is summarized in Table XIII for those areas of work that are being done by the XX33s. It does not report the areas for which no one indicated they performed.

Because this identification of work areas of the subset is so similar in results to that of the entire group of respondents, it would serve no purpose to display the results of the skills question, which are also very similar.

3. Educational Skill Requirements as Evaluated by XX33s

Since they have experienced the MPTA curriculum, it is interesting to look at how NPS graduates view the ESRs in relation to their jobs. The reader is asked to refer to the previous subsection, or Appendix A, that reports the total group's ratings to see the specific ESRs written out. What follows is how the XX33s reported the relationship. Rounded percentages are in parentheses. Table XIV ranks the ESRs in descending order of mean score attained.

ESR 1:

Not applicable - 0
Useful for background - 6 (.28)
Useful some of the time - 1 (.05)
Useful all of the time - 4 (.19)
Essential - 10 (.48)

ESR 2:

Not applicable - 0
Useful for background - 4 (.19)
Useful some of the time - 2 (.09)

AREAS: GENERAL AND SPECIFIC of xx33s	1st	2nd	3rd	4th	5th
1.0 Manpower policy analysis	2	3	4	0	1
1.1 Evaluation of readiness	0	0	1	0	1
1.2 Determination of personnel quality requirements	2	2	1	1	1
2.0 Manpower planning	2	1	0	1	1
2.1 Total Force requirements determination	2	0	2	0	0
2.2 Training requirements determination	0	1	1	1	0
2.3 Billet analysis/classification	0	2	0	3	1
2.4 Manpower forecasting	2	3	0	2	1
2.5 Career progression policy development	0	1	1	0	1
3.0 Economic market analysis	0	1	1	1	0
4.0 Budget analysis/preparation	0	3	0	1	0
5.0 Financial analysis/estimation	0	0	1	0	2
6.0 Military compensation	2	0	0	0	1
7.0 Job design and analysis	0	0	0	0	1
7.1 Task analysis	2	0	1	0	0
7.2 Billet classification	0	0	2	0	1
7.3 Human factors engineering	0	0	0	0	0
7.4 Capital-labor substitution	0	0	0	0	0
8.0 Manpower engineering	1	0	0	0	0
8.1 Ship manning documentation	0	0	1	2	0
8.2 Squadron manning documentation	1	0	0	0	1
8.3 Shore manning documentation	0	1	1	0	1
8.4 Military-civilian substitution	0	0	0	0	0
9.0 Recruiting	1	0	0	0	0
10.0 Selection and classification	0	0	1	1	0
11.0 Personnel testing and test use	0	0	0	0	0
12.0 Detailing/assignment/placement	1	0	1	0	0
13.0 Management of training	0	0	1	0	0
13.1 Training programs development	0	0	0	0	0
13.2 Training equipment acquisition	0	0	0	0	0
13.3 Training contract monitoring	0	0	0	0	0
14.0 Personnel training	0	1	0	0	0
14.1 Officer graduate education	2	0	0	0	0
14.2 Officer training	0	0	0	1	0
14.3 Enlisted training	0	0	0	0	0
14.4 Civilian education or training	0	0	0	0	0
15.0 Performance evaluation	0	0	0	0	0
15.1 Performance evaluation of officers	0	0	0	1	1
15.2 Performance evaluation of enlisted personnel	0	0	0	0	0
15.3 Performance evaluation of civilian personnel	0	0	0	0	0
16.0 Mobilization	0	0	0	0	0
17.0 Management information systems	0	1	0	2	0

Figure 3.2 Areas of Work (XX33 Subspecialists).

TABLE XIII

Summary of Areas of Work (XX33 Subspecialists)

CODE	WORK AREAS	NO.
2.0	MANPOWER POLICY ANALYSIS	10
2.4	MANPOWER FORECASTING	8
1.2	DETERMINATION OF PERSONNEL QUALITY REQUIREMENTS	7
2.3	BILLET ANALYSIS/CLASSIFICATION	6
2.0	MANPOWER PLANNING	5
2.1	TOTAL FORCE REQUIREMENTS DETERMINATION	4
4.0	BUDGET ANALYSIS/PREPARATION	4
2.2	TRAINING REQUIREMENTS DETERMINATION	3
2.5	CAREER PROGRESSION POLICY DEVELOPMENT	3
3.0	ECONOMIC MARKET ANALYSIS	3
5.0	FINANCIAL ANALYSIS/ESTIMATION	3
6.0	MILITARY COMPENSATION	3
7.1	TASK ANALYSIS	3
7.2	BILLET CLASSIFICATION	3
8.1	SHIP MANNING DOCUMENTATION	3
8.3	SHORE MANNING DOCUMENTATION	3
17.0	MANAGEMENT INFORMATION SYSTEMS	3
1.1	EVALUATION OF READINESS	2
8.2	SQUADRON MANNING DOCUMENTATION	2
10.0	SELECTION AND CLASSIFICATION	2
12.0	DETAILING/ASSIGNMENT/PLACEMENT	2
14.1	OFFICER GRADUATE EDUCATION	2
15.1	PERFORMANCE EVALUATION OF OFFICERS	2
7.0	JOB DESIGN AND ANALYSIS	1
8.0	MANPOWER ENGINEERING	1
9.0	RECRUITING	1
13.0	MANAGEMENT OF TRAINING	1
14.0	PERSONNEL TRAINING	1
14.2	OFFICER TRAINING	1

Useful all of the time - 5 (.24)

Essential - 10 (.48)

ESR 3:

Not applicable - 1 (.05)

Useful for background - 2 (.09)

Useful some of the time - 3 (.14)

Useful all of the time - 5 (.24)

Essential - 10 (.48)

ESR 4:

Not applicable - 0

Useful for background - 8 (.38)
Useful some of the time - 2 (.09)
Useful all of the time - 5 (.24)
Essential - 6 (.29)

ESR 5:
Not applicable - 0
Useful for background - 3 (.14)
Useful some of the time - 4 (.19)
Useful all of the time - 6 (.29)
Essential - 8 (.38)

ESR 6:

Not applicable - 4 (.19)
Useful for background - 7 (.33)
Useful some of the time - 4 (.19)
Useful all of the time - 3 (.14)
Essential - 3 (.14)

ESR 7:

Not applicable - 1 (.05)
Useful for background - 3 (.14)
Useful some of the time - 5 (.24)
Useful all of the time - 4 (.19)
Essential - 8 (.38)

ESR 8:

Not applicable - 3 (.14)
Useful for background - 4 (.19)
Useful some of the time - 5 (.24)
Useful all of the time - 2 (.09)
Essential - 7 (.33)

ESR 9:

Not applicable - 0

Useful for background - 4 (.19)
Useful some of the time - 4 (.19)
USeful all of the time - 3 (.14)
Essential - 10 (.48)

ESR 10:

Not applicable - 2 (.09)
Useful for background - 3 (.14)
Useful some of the time - 9 (.43)
Useful all of the time - 4 (.19)
Essential - 3 (.14)

ESR 11:

Not applicable - 1 (.05)
Useful for background - 5 (.24)
Useful some of the time - 3 (.14)
Useful all of the time - 4 (.19)
Essential - 8 (.38)

ESR 12:

Not applicable - 1 (.05)
Useful for background - 3 (.14)
Useful some of the time - 5 (.24)
Useful all of the time - 4 (.19)
Essential - 8 (.38)

ESR 13:

Not applicable - 3 (.14)
Useful for background - 6 (.29)
Useful some of the time - 5 (.24)
Useful all of the time - 2 (.09)
Essential - 5 (.24)

ESR 14:

Not applicable - 0

Useful for background - 1 (.05)
Useful some of the time - 4 (.19)
Useful all of the time - 5 (.25)
Essential - 11 (.52)

ESR 15:

Not applicable - 4 (.19)
Useful for background - 11 (.52)
Useful some of the time - 2 (.09)
Useful all of the time - 3 (.14)
Essential - 1 (.05)

ESR 16:

Not applicable - 0
Useful for background - 5 (.24)
Useful some of the time - 2 (.09)
Useful all of the time - 6 (.28)
Essential - 8 (.38)

ESR 17:

Not applicable - 4 (.19)
Useful for background - 5 (.24)
Useful some of the time - 3 (.14)
Useful all of the time - 4 (.19)
Essential - 5 (.24)

ESR 18:

Not applicable - 1 (.05)
Useful for background - 1 (.05)
Useful some of the time - 1 (.05)
Useful all of the time - 7 (.33)
Essential - 11 (.52)

ESR 19:

Not applicable - 2 (.09)

Useful for background - 2 (.09)
Useful some of the time - 9 (.43)
Useful all of the time - 4 (.19)
Essential - 4 (.19)

4. Choice of Curriculum Requirements by XX33s

It is interesting to note how those respondents who are familiar with at least some version of the MPTA curriculum view the usefulness or lack of usefulness of the courses to their jobs. There is some variance between how the subgroup and the complete group rank ordered the courses. Table XV summarizes how the XX33s rank ordered the courses they considered useful, and Table XVI does the same for those courses they have not had to call upon.

C. CORRELATIONS AMONG THE DATA

The use of the SAS program and the manner in which the data variables were coded limited the selection of variables that could be correlated. Correlation measures the closeness of a linear relationship between two variables [Ref. 8: p. 501]. Correlations were computed on those variables described below. The Pearson product-moment correlation is the statistic used. It is described as

> ...the standard measure of the linear relationship between two variables and has the properties of:
>
> 1. It is a pure number and independent of the units of measurement.
> 2. Its absolute value varies between zero, when the variables have no linear relationship, and 1, when each variable is perfectly predicted by the other. The absolute value thus gives the degree of the relationship.
> 3. Its sign indicates a tendency for high values of one variable to occur with high values of the other and low values to occur with low. A negative sign indicates a tendency for high values of one variable to be associated with low values of the other. [Ref. 9: p.33]

TABLE XIV

ESRs Ranked by Mean Score of XX33s

RANKING	ESR and DESCRIPTION	MEAN	SD
1 t	14 - Personnel policies	4.24	0.94
1 t	18 - OPNAV SOP	4.24	1.09
2 t	2 - Management applications	4.00	1.18
2 t	3 - MIS	4.00	1.22
3 t	5 - Systems analysis	3.90	1.09
3 t	9 - Defense resource allocation	3.90	1.22
4	1 - Management principles	3.86	1.31
5	16 - Interrelationships	3.81	1.21
6 t	7 - Organizations in action	3.71	1.27
6 t	12 - Personnel management	3.71	1.27
7	11 - Changing Navy requirements	3.62	1.36
8	4 - Computer techniques	3.42	1.29
9 t	8 - Social sciences	3.29	1.49
9 t	19 - Affecting policies	3.29	1.19
10	10 - Planning models	3.14	1.15
11	17 - Econometrics	3.05	1.50
12	13 - Industrial engineering	3.00	1.41
13	6 - Quantitative techniques	2.71	1.35
14	15 - Historical perspective	2.33	1.11

SD = standard deviation
t = tied

TABLE XV

Courses Considered Most Useful by XX33s

COURSE	NO.
OS 4701	14
OS 3106	13
MN 3172	10
OS 3702	9
MN 3111	7
MN 4106	7
OS 3105	6
MN 4105	6
MN 3760	5
MN 4761	5
IS 3183	5
MN 3140	4
MN 4110	4
OS 3006	4
MN 4117	2
MN 2031	1
MA 2300	1
MN 3105	1
MN 3333	1
MN 2150	0
MN 3161	0

TABLE XVI

Courses Considered Least Useful by XX33s

COURSE	NO.
MN 2150	15
MN 3161	12
OS 3006	7
MN 3140	7
MN 2031	5
MN 3105	5
MN 3333	5
MA 2300	4
OS 3702	4
MN 4117	4
MN 4105	4
IS 3183	4
OS 3105	3
MN 3760	3
OS 3106	3
MN 4761	3
MN 4110	3
MN 4106	3
MN 3111	0
MN 3172	0
OS 4701	0

The correlation statistic was used only on the entire group of repondents. The subset of 21 XX33s was not sufficiently large to provide meaningful results.

1. Correlations Between Skills

In the social sciences, a correlation coefficient is considered significant at .30 and above. Most of the skill pairs did not exhibit a positive linear relationship of that strength. Most were weak, some were slightly negative. It is important to note which pairs are the kinds of skills that do go together by the frequency they are used in the performance of work. The descriptive analysis below lists only those skill pairs that resulted in a correlation coefficient (r) of .30 or above. This analysis is drawn from the entire respondent group.

1. Technical writing with:

a. data collection	r=.30957
b. operations analysis	r=.34212
c. econometric analysis	r=.30482

2. Computer-based statistical analysis with:

a. manual statistical analysis	r=.57418

3. Legislative correspondence with:

a. Navy correspondence	r=.31626
b. market analysis	r=.32262

4. Data collection with:

a. manual statistical analysis	r=.33644
b. job analysis	r=.42427
c. operations analysis	r=.33804
d. computer-based statistics	r=.43319

5. Personnel survey development and administration with:

a. research design	r=.34346

6. Personnel test development and use with:

a. education and training development r=.34343

7. Financial management with:

a. ECM/PPBS/Budget preparation r=.58902
b. contract negotiation r=.31618

8. Management information systems with:

a. microcomputer use r=.37743
b. organizational systems design r=.49000
c. computer programming r=.50571

9. Computer programming with:

a. microcomputer use r=.41474
b. manual statistical analysis r=.31708
c. computer-based statistical analysis r=.35931

10. Computer manpower modeling with:

a. operations analysis r=.32807
b. econometric analysis r=.41835
c. manual statistical analysis r=.32096
d. computer-based statistical analysis r=.48000
e. computer programming r=.39963

11. Operations analysis with:

a. organizational systems design r=.43336
b. research design r=.32693
c. econometric analysis r=.48117

12. Econometric analysis with:

a. organizational systems design r=.37798
b. manual statistical analysis r=.37361
c. computer-based statistical analysis r=.30084
d. market analysis r=.56998

2. Correlations Between Educational Skill Requirements

The ESRs evidenced a number of moderate to strong correlational relationships, which was not unexpected. The ESRs are not written out in this section; the reader is referred to either the earlier section of this chapter or Appendix A for their full definitions. Listed below are all ESR pairs that showed a correlation coefficient (r) of .30 or higher.

1. ESR 1 with:
    a. ESR 2 r=.49327
    b. ESR 8 r=.42378

2. ESR 2 with:
    a. ESR 3 r=.41368
    b. ESR 5 r=.40796
    c. ESR 8 r=.35809
    d. ESR 9 r=.36664

3. ESR 3 with:
    a. ESR 4 r=.31095
    b. ESR 6 r=.37948
    c. ESR 9 r=.38682
    d. ESR 11 r=.38951
    e. ESR 14 r=.32982
    f. ESR 16 r=.31173

4. ESR 4 with:
    a. ESR 5 r=.53038
    b. ESR 6 r=.61818
    c. ESR 10 r=.44192
    d. ESR 16 r=.31535

5. ESR 5 with:
    a. ESR 6 r=.60488
    b. ESR 9 r=.34723
    c. ESR 10 r=.36714

   d. ESR 11 r=.31400
   e. ESR 12 r=.44036
   f. ESR 14 r=.43015
   g. ESR 16 r=.43335
   h. ESR 17 r=.32699

6. ESR 6 with:
   a. ESR 7 r=.30966
   b. ESR 10 r=.59320
   c. ESR 11 r=.37840
   d. ESR 14 r=.31730

7. ESR 7 with:
   a. ESR 8 r=.53256
   b. ESR 15 r=.34652
   c. ESR 16 r=.40161

8. ESR 8 with:
   a. ESR 11 r=.32233
   b. ESR 12 r=.35977
   c. ESR 15 r=.35732
   d. ESR 16 r=.43040
   e. ESR 17 r=.37221
   f. ESR 18 r=.32887
   g. ESR 19 r=.35022

9. ESR 9 with:
   a. ESR 14 r=.52050
   b. ESR 16 r=.44076
   c. ESR 17 r=.42107
   d. ESR 19 r=.33530

10. ESR 10 with:
   a. ESR 11 r=.37700
   b. ESR 12 r=.35706

11. ESR 11 with:
   a. ESR 14 r=.43543

b. ESR 17 r=.50489

12. ESR 12 with:
    a. ESR 14 r=.52666
    b. ESR 16 r=.42552
    c. ESR 17 r=.50734

13. ESR 13 with:no others

14. ESR 14 with:
    a. ESR 16 r=.57112

15. ESR 15 with:
    a. ESR 16 r=.44590

16. ESR 16 with:
    a. ESR 17 r=.55111
    b. ESR 18 r=.49055
    c. ESR 19 r=.39903

17. ESR 17 with:
    a. ESR 18 r=.38422
    b. ESR 19 r=.33039

18. ESR 18 with:
    a. ESR 19 r=.52217

IV. RESULTS AND RECOMMENDATIONS

A. SURVEY FINDINGS

The desire for practicality in course work emphasizing a relationship to the "real world" appears to be the key finding. It is possible that, had the questions been worded differently, the results may have differed. It was not the authors' design to introduce bias by the selectivity of questions; however, it is always possible that could have occurred unintentionally. Of course, the fairly small number of respondents may not be representative of the population of MPT analysts at all. This is an especially important point since this survey did not encompass those subspecialists who are not currently serving in MPTA billets. The intention of the survey was to question MPTA billet incumbents, however, not MPTA subspecialists per se.

1. The Respondents

This is an area where bias may exist. The original mailing list identified 11 officers with subspecialty codes of 0033P, four with 9033P and three with 9033Q. Replies were received from 16 with 0033P, three with 9033P, and two with 9033Q, which means five more MPTA curriculum graduates than expected (or three, if the two non-NPS graduates with 0033P subspecialty codes are excluded). It appears this group felt a vested interest in the survey. Of those who received MPTA subspecialty designation through experience (XX33S) only six holding the primary subspecialty code and four with secondary subspecialty codes, out of a potential of 17, replied. The remainder of respondents (63) varied widely in their subspecialty designation, or had none, as was expected.

As a group, the respondents seemed quite inexperienced in the MPTA field, with 70% having no previous tours in the field. This figure compares with 81% of NPS graduates generally having no prior subspecialty experience.

2. Areas of Work

The format in this section was multiple choice. If no choice of what the respondents actually do was provided, however, they still may have answered with something closely aligned rather than leave a blank. As is a pitfall in any survey, what respondents say they do may not be actually what they do.

Manpower policy analysis, however it may be perceived, is clearly the number-one area of focus, followed by manpower forecasting. This is true for both the total group and the NPS graduates. Budget analysis and preparation also claim a good deal of attention.

Manpower engineering and billet analysis and classification appear to be more concentrated within the Navy Manpower Engineering Center and its detachments (NAVMEC and NAVMECDETS) than within the policy arena. Practical courses are given throughout the Navy to prepare officers and enlisted and civilian personnel to perform these jobs. Familiarity with these procedures is important to the NPS graduate, but the detailed aspects are perhaps best left to the practical training courses.

Manpower planning and personnel and training requirements determination are also strongly emphasized fields by both the entire group of respondents and the subset of NPS graduates. Along with these, use of management information systems (MIS) appears to play a large role. It is conceivable that this perception could be a distortion because of lack of knowledge of what an MIS is. Some may have said they were engaged in this area if they use any kind of computer application.

3. Skills

When ranked according to their arithmetic means, the skills noted as most used in the performance of work tracked logically with the areas of work. By far, the most used skill was "Navy correspondence," placing it closer to "lots" than to "some" for the aggregate amount of time devoted to it. The second most used skill was "data collection" with a strong aggregate utilization rate of "some" of the time. With manpower policy analysis ranked as the number one area of work and manpower forecasting as number two, a logical connection can be drawn between skill and work areas. Correspondence is generally essential in presenting any area of policy analysis, and data collection is the basis for the analysis.

The POM/PPBS/budget preparation and analysis skill ranked as the skill used third most frequently; this compares well with the work-area results since the third-ranked area of work is budget analysis and preparation. Tied as the third ranked area of work is MIS. Tracking with it are the fourth- and fifth-ranked skills -- computer-based statistical analysis and MIS (as a skill). Statistical analysis performed manually ranked as the sixth most utilized skill; that skill can fit with any of the areas of work.

As expected, among the least utilized skills, there appears to be little association with areas of work that are performed frequently. However, if some of the areas of work were based on serious analytical foundations, perhaps skills such as econometrics, market analysis and research design might be more highly rated.

4. Educational Skill Requirements and Curriculum Requirements

The subset of subspecialists rated the ESRs in general as being more useful to their jobs than the respondent group as a whole. There was some difference between the two groups in the ranking of the usefulness of the ESRs (see Tables X and XIV), but the numerical closeness of the mean scores and their sizeable standard deviations may negate much of the apparent differences.

Respondents had very definite opinions about some of the ESRs. In clustering those that were rated as "Useful all the time" or "Essential," ESRs 1, 2, 3, 9, 12, 14, and 18 stand out. They had to do with either general management principles or specific institutional requirements. As noted in the discussion of recommendations (see below), the curriculum does not concentrate substantially in those areas.

They also had definite opinions about ESRs that have no applicability, or may be useful only for background, or perhaps just useful some of the time. These are ESRs 4, 6, 8, 10, 15, and 17. Yet the curriculum places some concentration on these areas, which include either highly quantitative techniques or historical perspectives.

It is interesting to note that ESR 10, which requires familiarity with planning models, is rated fairly low as to its usefulness; yet, one of its related courses, OS 4701, Manpower and Personnel Models, is rated highly as a course that would be considered useful to take. This shows there are some inconsistencies between usefulness of ESRs to the job and courses that would be considered useful. The authors feel this inconsistency may be due to wording of either the ESR or the course description.

The ratings of the remaining six ESRs (5, 7, 11, 13, 16, and 19) reflect no definitive opinions. The conclusion thus reached is that either they are so broad in content that their interpretation is nebulous or simply that their apparent usefulness really does vary with a specific billet's requirements.

5. Correlations Between Skills and Between ESRs

On the whole, the correlations among various skills sets were reasonable, almost to the point of being obvious. The most highly correlated sets (over .50) were computer-based statistical analysis and manual statistical analysis (r=.57418); financial management and POM/PPBS/budget preparation and analysis (r=.58902); management information systems and computer programming (r=.50571); and econometric analysis and market analysis (r=.56998). These correlations simply mean that if one skill is used frequently the other is also, or if one is used infrequently, the other is also used infrequently, nothing more. Because of this, at least one correlation pair with r greater than .30 did not make sense: legislative correspondence and market analysis.

The same reasoning holds true for correlations of ESR pairs. For example, the most highly correlated pair, ESR 4 with ESR 6 (r=.61818) have to do with computer programming and quantitative techniques. ESR 9, concerned with defense resource allocation, correlates with several ESRs that have to do with management, budgeting, and resources, which is not surprising.

B. RECOMMENDATIONS

The following recommendations are based on information gleaned from the entire sample of respondents, that is, from the 94 usable questionnaires that were returned. It must be noted that these recommendations are based on the opinions and professional background of the authors, and others may of course reach different conclusions or disagree with our recommendations. The recommendations are not listed in any particular order; no inferences should be drawn about their position on the list.

1. Recommendation 1

Of those who responded to the survey, 26.59 percent stated that use of Management Information Systems (MIS) was a major work area. In fact, this area tied as the third largest work area of all those included in the survey. Additionally, the MIS course was considered the third most useful of all courses in the MPTA curriculum (45 out of 94). In addition to the current survey course in Management Information Systems IS 3183, MPTA students should be given a course in Decision Support Systems. The current course, which is very general in nature, should also be restructured, possibly into two quarters, to provide more depth for the students. Before this restructuring, however, research should be done as to how and what MIS skills are used in the XX33 community.

2. Recommendation 2

Budget Analysis/Preparation was cited by 26.59 percent of survey respondents as one of their major work areas. This area tied with use of Management Information Systems for the third largest work area of MPTA subspecialists. Currently, only one course in the MPTA curriculum even discusses this subject -- Public Policy Processes, MN 3172. As a side note, when the authors took this course it was taught by a visiting professor who spent exactly two class periods (50 minutes each) on preparation of the Defense Budget. MPTA students should be required or provided the opportunity to take Financial Management in the Armed Forces, or the opportunity to concentrate on the MPTA curriculum with a Financial Management track or "minor".

3. Recommendation 3

During the first two quarters of the MPTA curriculum, eight basic courses are required as "Management Fundamentals" (see Appendix C). Of these eight, five were cited as the least useful courses by the 94 survey respondents. These five are listed below, with the percentage of respondents that named each as "Least Useful" to the right.

Financial Accounting (MN 2150), 60%
Economic Decision Making (MN 2031), 41%
Microeconomic Theory (MN 3140), 41%
Managerial Accounting (MN 3161), 38%
Mathematics for Management (MA 2300), 30%

It is recommended that (a) these courses be dropped from the curriculum or (b) the two accounting and the two economics courses be combined into one course each and the mathematics course be dropped or (c) if the above cannct be accomplished, for any reasons, then expand the curriculum to seven quarters to allow MPTA students the time to include other courses considered more useful. Courses in this category include Financial Management in the Armed Forces or other financial management/budget preparation courses, more courses in Management Information Systems, etc.

4. Recommendation 4

The use of computers is growing tremendously in the XX33 community; yet, there is no course at NPS aimed at making the MPTA students familiar with computer use. The Management Information Systems course, IS 3183, is not a "hands on" user oriented course. There was at one time a Fortran programming course in the MPTA curriculum, which was dropped, and probably rightfully so since programming is not a large part of an MPTA subspecialist's position. Seventy three percent of our respondents said they did little (28%) or no (45%) computer programming. However, it is recommended that the Administrative Sciences Department develop a micro-computer laboratory, with a course in the everyday use of different types of micro-computers. The emphasis should be on how to use the micros to aid in policy and management decisions. This topic could be tied into the Decision Support Systems course in some manner.

5. Recommendation 5

Data collection was cited as the second-most used technical skill by the survey respondents. The only skill more used was "Navy Correspondence." Forty-five percent of the respondents stated they performed "LOTS" of data collection. Unfortunately, there is not a single course at NPS regarding data collection. The only courses that deal with data concern the analysis and/or uses of already collected data. Since any analysis is only as good as the data upon which it is based, the lack of any course in data gathering indicates a large gap in the curriculum. Therefore, it is recommended that a course for MPTA students, like Behavioral Research Methodology (MN 3001), in correct and unbiased methods of data collection be initiated.

6. Recommendation 6

The authors found it very interesting that not a single Educational Skill Requirement was rated "Useful all the time" or "Essential" (4.0 or above) by the whole population of survey respondents. This result could mean several things. It could indicate that the ESRs are either out of touch with what is really needed in the XX33 community, or that they are worded such that respondents see no correlation to their billets. Also, it could mean that there is such a wide disparity in what is performed in XX33 billets that there can be no one area considered "Essential". It is recommended therefore that this topic be explored during the upcoming MPTA curriculum review.

7. Recommendation 7

Thirty-seven percent of survey respondents stated that Manpower Policy Analysis was their major work area. This made it the most highly rated work area. Until the Spring Quarter 85, there was only one course at NPS which addressed this area. The addition of Multivariate Manpower Data Analysis (MN 4110) may help to overcome this gap in the curriculum. It is recommended that any course dealing with policy analysis be kept as practical as possible to assist in the transfer of skills to the policy analysis work arena. Specifically, information as to exactly what is entailed in the billets should be gathered, and then incorporated into the courses.

8. Recommendation 8

Manpower Forecasting is listed by 30.85 percent of respondents as their major work area. This percentage made it the second largest work area. There is, however, only one course at NPS devoted to this area. This course, Manpower and Personnel Models (OS 4701), was stated to be the fifth most useful course in the current curriculum. Since approximately a third of all respondents work in the area of manpower forecasting, it is recommended that at least one more course be initiated and devoted to forecasting. OS 4701 is essentially a survey course in Markov Analysis techniques, and therefore it is recommended that there be a follow-on course in the practical aspects of forecasting, perhaps using the same type of computer hardware and software utilized in OPNAV and NMPC.

9. Recommendation 9

Six of the nineteen Educational Skill Requirements were overwhelmingly considered by the whole population of survey respondents to be either "Not Applicable" or "Useful for Background Only". They are:

ESR 4 "The officer must have a basic familiarity with computer programming techniques and software development principles."

ESR 6 "The officer must have a working knowledge of quantitative techniques (e.g., expected value, queuing theory) appropriate for management analysis."

ESR 8 "The officer must exhibit a broad, general knowledge of the social sciences as they apply to the behavior of individuals, groups, and organizations in the Navy including an understanding of the interpersonal communications, power relationships, and individual and group values as they affect organizational action."

ESR 10 "The officer must be familiar with planning models which use techniques such as linear programming, regression analysis, and simulation, be able to communicate effectively about these models, and employ them in the planning and programming processes."

ESR 15 "The officer must have an historical perspective of the manpower, personnel, and training management since World War II."

ESR 17 "The officer must be familiar with the econometrics of strength planning for both first term and career personnel."

It is recommended that these particular ESRs be carefully considered during the upcoming Curriculum Review with the aim of either dropping them or revising them so that the courses based on them will be useful to the MPTA subspecialist. ESRs that are quite specific, such as numbers 9 and 18, were rated much higher than more general ones.

In looking at these ESRs to determine why they are not considered more useful, the authors have reached the following conclusions. ESR number 4 is probably considered not really useful because the XX33 subspecialist is a user of programs, not a programmer. Nor would the XX33 subspecialist be involved in software development except to inform the programmer of the desired end result of a program.

The authors surmise that ESR numbers 6 and 10 are not important to survey respondents because most billets involved with manpower analysis and planning use "canned" computer programs. Being able to manipulate data and correctly interpret the results of these programs are apparently of more use to the subspecialist than knowing the underlying operations research or mathematical techniques.

The authors consider ESR number 8 to be more of an "experience learned" skill than one that can or should be taught at NPS. This may have appeared to be a "squishy" area to most respondents, that is, not technical or specific. ESR number 15 is, in the authors' opinion and that of the survey respondents, "nice-to-know" information but really unnecessary for proper performance in an XX33 billet.

The results on ESR number 17 were interesting to the authors since they contradicted the emphasis placed on manpower economics and analysis courses at NPS. With a mean of 2.4, most respondents consider this area to be just slightly more useful than background information. It is not possible to tell whether this is because most respondents are not involved in end-strength planning billets or whether this information is just not necessary even to those in end-strength planning billets. Again, the use of "canned" computer programs in most XX33 billets may make the respondents feel this ESR is unnecessary.

10. Recommendation 10

The five Educational Skill Requirements rated as most useful were, in order of usefulness to survey respondents:

ESR 3 "The officer must have a general knowledge of management information systems and their potential for effective use in the Navy, including an understanding of current and proposed resources such as manpower data bases and the organizational relationships of those resources to manpower, personnel and training organizations.

ESR 2 "The officer must have a broad, general knowledge of the basic management functional applications (e.g., finance, manpower, personnel).

ESR 18 "The officer must be exposed to OPNAV standard operating procedures for development of policy and policy changes including the research, analysis, and presentation (e.g., oral, memorandum, point paper) of these policies.

ESR 9 "The officer must exhibit an understanding of defense resource methodology, procedures, and organizational relationships as currently incorporated in the Planning, Programming and Budget System (PPBS). Included should be familiarity with the FYDP, CPAMS, PSD, POM; and the roles of resource, assessment and mission of sponsors and of the major budget claimants."

ESR 1 "The officer must have a thorough knowledge of basic management principles, fundamentals, and functions, both classical and contemporary."

It is strongly recommended that more courses in the MPTA curriculum be devoted to these ESRs. For instance, there is currently only one course concerning MIS. This field was rated very highly in not only the ESRs, but also in "Area of Work" and in usefulness of specific courses.

ESRs 1 and 2 both deal with management fundamentals. There are courses, such as Organizational Systems (MN 3105), currently in the curriculum to cover this area. However, it has dismayed the authors to note over the last two quarters that the curriculum is moving away from these fundamentals and toward more quantitative techniques.

The practical aspects of operating in the U.S. Naval environment are sadly lacking in the curriculum. The addition of a financial track to the MPTA curriculum, or the requirement of courses such as Financial Management in the Armed Forces and the addition of more "Washington familiar" instructors may help to strengthen this area.

V. CONCLUSIONS

Does the MPTA curriculum prepare students for MPTA billets? Yes, and no. This question cannot be answered definitively from the survey results. The subspecialty of the analysis of manpower, personnel, and training within the Navy encompasses a wide range of critical areas of work, skills and knowledge needed to perform well. This means both a broad-based education and an institutional training emphasis are needed to prepare students entering the MPTA arena.

In some regards, what NPS stresses may be ahead of what is actually happening in the field. Analysis may be the desired NPS result, but approximately 50 percent of the graduate education level MPTA billets are not filled by NPS-trained subspecialists. Therefore, the other incumbents lacking this education really may not be doing analysis (they are doing management) because they do not know it and so they think they do not need it in the curriculum. The results of this study show what is happening rather than what should be happening.

There is no doubt that institutional Navy policies and procedures are essential from either the subspecialist or the non-subspecialist viewpoint. By maintaining its academic ivory tower stance, the MPTA curriculum short-changes its students by not giving them as much as they need to "hit the decks running." By marrying the academic with the practical, many more needs could be satisfied than already are.

The authors write this thesis from the perspective of having orders in hand and knowing what their forthcoming assignments will entail. Neither would want to go to her job without the benefit of having attended the Naval Postgraduate School. Yet there still will be so much to be picked up on the job, some of which could have been covered by the MPTA curriculum.

Having to learn something on the job is a fact of life. But by considering the implementation of the recommendations of this thesis, the MPTA curriculum could move from being merely adequately preparatory to truly responsive to the needs of the Navy.

APPENDIX A

THE SURVEY

NOTE

THIS IS A SURVEY INTENDED FOR OFFICERS WHO ARE SERVING IN A BILLET THAT HAS A SUBSPECIALTY CODE OF XX33 P,Q,R OR S

IF YOU ERRONEOUSLY RECEIVED THIS PACKAGE, PLEASE FORWARD IT TO THE CORRECT PERSON IN YOUR ORGANIZATION, DEPARTMENT OR SECTION WHOSE TITLE MOST NEARLY MATCHES THAT ON THE OUTER ENVELOPE

THANK YOU VERY MUCH

SURVEY OF MANPOWER PERSONNEL TRAINING ANALYSIS (MPTA) BILLETS (XX33)

Naval Postgraduate School
Monterey, California 93943

Dear Fellow Officer:

Would you kindly take the time to complete the enclosed questionnaire. This same request is being made of all incumbents of XX33 P,Q,R and S billets. We realize that completing the questionnaire will take some time.

The conduct of this survey has been coordinated with the subspecialty manager and the Naval Postgraduate School (NPS). This questionnaire is being used to complete our thesis requirement at NPS. We know that not all of you are MPTA subspecialists nor have you all attended NPS. Many of you received designation through significant experience. Your varying backgrounds will enhance the usefulness of this study.

We are traveling to Washington and some other locations at the end of March to expand on the information that we receive from this survey. If you desire to talk to us about this questionnaire or the MPTA community then or at any other time, please phone us at AV 878-2536/COM (408)646-2536. If you leave a message, we will return your call.

Timely submission of the survey is important to meet the May 1985 completion date for this project. Please try to return the completed survey in the enclosed envelope within five days. (We know how it is if you put it off!) Your answers will remain confidential since no personal identifying information is requested.

Thank you very much for your time and cooperation - it is vital to the completion of this project. We need your help to help our community.

Dixie E. Kopfler LCDR, USN	Leda B. Wingast LCDR, USN

SURVEY OF MANPOWER PERSONNEL TRAINING ANALYSIS (MPTA) BILLETS (XX33)

QUESTIONNAIRE

My rank is______________

My designator is________

My primary officer subspecialty code is ___________
(Example: 9033Q, 0036S, none)
My secondary officer subspecialty code is _________

My billet is coded __________
(Example: 0033S)

I have served _____ tours in addition to this current one in XX33 coded billets.
(Example: 0,1,2)

On the next page is a list of work areas in which someone might work in the MPTA (XX33) subspecialty. Please determine which of these apply to your current billet, choosing no more than 5. Rank them in descending order of importance, with 1 being the most important area, 2 being the area of next most importance, etc. Please do not list more than 5 areas. In a choice among general (e.g., 1.0) and specific areas (e.g., 1.1 or 1.2) choose the most specific area or areas that apply in your case. Do not choose both a genera area and specific version of it.Clearly, not all items areas apply to in a single billet.

1.0 Manpower Policy analysis ________
1.1 Evaluation of readiness ________
1.2 Determination of personnel quality requirements ________

2.0 Manpower planning ________
2.1 Total Force requirements determination ________
2.2 Training requirements determination ________
2.3 Billet analysis/classification ________
2.4 Manpower forecasting ________
2.5 Career progression policy development ________

3.0 Economic market analysis ________

4.0 Budget analysis/preparation ________

5.0 Financial analysis/estimation ________

6.0 Military compensation ________

7.0 Job design and analysis ________
7.1 Task analysis ________
7.2 Billet classification ________
7.3 Human factors engineering ________
7.4 Capital-labor substitution

8.0. Manpower engineering ________
8.1 Ship manning documentation ________
8.2 Squadron manning documentation ________
8.3 Shore manning documentation ________
8.4 Military-civilian substitution ________

9.0 Recruiting ________
10.0 Selection and classification ________
11.0 Personnel testing and test use ________
12.0 Detailing/assignment/placement ________
13.0 Management of training ________
13.1 Training programs development ________
13.2 Training equipment acquisition ________
13.3 Training contract monitoring ________

14.0 Personnel training ________
14.1 Officer graduate education ________
14.2 Officer training ________
14.3 Enlisted training ________
14.4 Civilian education or training ________

15.0 Performance evaluation ________
15.1 Performance evaluation of officers ________
15.2 Performance evaluation of enlisted personnel ________
15.3 Performance evaluation of civilian personnel ________
16.0 Mobilization ________

17.0 Management information systems ________

Comments

This next question asks for the skills required in your current billet. For each entry, please circle the amount of skill required that applies. Again, not every billet uses every skill.

1. Technical writing	None	Little	Some	Lots
2. Market analysis	None	Little	Some	Lots
3. Manual statistical analysis	None	Little	Some	Lots
4. Computer-based statistical analysis	None	Little	Some	Lots
5. Navy correspondence	None	Little	Some	Lots
6. Legislative correspondence	None	Little	Some	Lots
7. Data collection	None	Little	Some	Lots
8. Job analysis	None	Little	Some	Lots
9. Personnel survey development and administration	None	Little	Some	Lots
10. Personnel test development and use	None	Little	Some	Lots
11. Financial management	None	Little	Some	Lots
12. Education and training development	None	Little	Some	Lots
13. POM/PPBS/Budget preparation and analysis	None	Little	Some	Lots
14. Management information systems development and use	None	Little	Some	Lots
15. Computer programming	None	Little	Some	Lots
16. Computer manpower modeling	None	Little	Some	Lots

17. Microcomputer use None Little Some Lots

18. Organizational system design None Little Some Lots

19. Contract negotiation None Little Some Lots

20. Research design None Little Some Lots

21. Operations analysis None Little Some Lots

22. Econometric analysis None Little Some Lots

Other____

____

____

The following list of functional objectives describe those elements of the MPT subspecialty considered necessary to perform in a billet properly. Called "Educational Skill Requirements," these objectives form the basis of the MPTA curriculum at the Naval Postgraduate School. For each of these objectives, please determine how necessary each is to your present position and rate accordingly by circling one of the possible responses. If there is a functional skill necessary for your billet, but it is not on the list below, please add it in the space provided.

1. The officer must have a thorough knowledge of basic management principles, fundamentals, and functions, both classical and contemporary.

Not applicable	Useful for backgound	Useful some of the time	Useful all of the time	Essential

2. The officer must have a broad, general knowledge of the basic management functional applications (e.g., finance, manpower, personnel).

Not applicable	Useful for background	Useful some of the time	Useful all of the time	Essential

3. The officer must have a general knowledge of management information systems and their potential for effective use in the Navy, including an understanding of current and proposed resources such as manpower data bases and the organizational relationships of those resources to manpower, personnel, and training organizations.

Not applicable	Useful for background	Useful some of the time	Useful all of the time	Essential

4. The officer must have a basic familiarity with computer programming techniques and software development priniciples.

Not applicable	Useful for background	Useful some of the time	Useful all of the time	Essential

5. The officer must have a basic understanding of systems analysis processes, to include a thorough knowledge of problem solving, decision making models, and the conduct of cost/benefit analysis.

Not applicable	Useful for background	Useful some of the time	Useful all of the time	Essential

6. The officer must have a working knowledge of quantitative techniques (e.g., expected value, queuing theory) appropriate for management analysis.

Not applicable	Useful for background	Useful some of the time	Useful all of the time	Essential

7. The officer must exhibit a working knowledge of organizations in action including an appreciation of the rational bureaucratic and political models of organization.

Not applicable	Useful for background	Useful some of the time	Useful all of the time	Essential

8. The officer must exhibit a broad, general knowledge of the social sciences as they apply to the behavior of individuals, groups, and organizations in the Navy including an understanding of the interpersonal communications, power relationships, and individual and group values as they affect organizational action.

Not applicable	Useful for background	Useful some of the time	Useful all of the time	Essential

9. The officer must exhibit an understanding of defense resouce allocation methodology, procedures, and organizational relationships as currently incorporated in the Planning, Programming and Budgeting System (PPBS). Included should be familiarity with the FYDP, NARM update model; the programming process including CPAMS, PSD, POM; and the roles of resource, assessment and mission sponsors and of major budget claimants.

Not applicable	Useful for background	Useful some of the time	Useful all of the time	Essential

10. The officer must be familiar with planning models which use techniques such as linear programming, regression analysis, and simulation, be able to communicate effectively about these models, and employ them in the planning and programming processes.

Not applicable Useful for background Useful some of the time Useful all of the time Essential

11. The officer must be exposed to qualitative and quantitative methodologies available for use by the Navy to respond to changing requirements or constraints in the size, composition, use, movement, and training of Navy personnel.

Not applicable Useful for backgound Useful some of the time Useful all of the time Essential

12. The officer must have a thorough knowledge of the personnel management functions of acquisition, selection, classification, assignment, development, education, training, retention, compensation, and retirement of Navy personnel (active duty, retired, reserves, civilian, contractors) and their interrelationships in Total Force Management.

Not applicable Useful for background Useful some of the time Useful all of the time Essential

13. The officer must understand work measurement, task analysis, manpower surveys, and man-machine techniques associated with industrial engineering to be able to develop, analyze, and manage Navy manpower and training requirements determination methodologies.

Not applicable Useful for background Useful some of the time Useful all of the time Essential

14. When developing, promoting, implementing and assessing manpower, personnel or training management policies, the officer must weigh their long and short term impacts on Navy programs, fleet readiness, other components of the Total Force, and on planning variables such as end strengths, accession demands, force levels, and training pipeline management.

Not applicable Useful for background Useful some of the time Useful all of the time Essential

15. The officer must have an historical perspective of the devlopment of manpower, personnel, and training management since World War II.

Not applicable	Useful for background	Useful some of the time	Useful all of the time	Essential

16. When developing, promoting, implementing and assessing manpower, personnel or training management policies, the officer must understand the complex interrelationships which exist among MPT systems components and the potential impact of policy change on the retention, productivity, job satisfaction, and loyalty of Navy personnel.

Not applicable	Useful for background	Useful some of the time	Useful all of the time	Essential

17. The officer must be familiar with the econometrics of strength planning for both first term and career personnel.

Not applicable	Useful for background	Useful some of the time	Useful all of the time	Essential

18. The officer must be exposed to OPNAV standard operating procedures for development of policy and policy changes including the research, analysis, and presentation (e.g., oral. memorandum, point paper) of these policies.

Not applicable	Useful for background	Useful some of the time	Useful all of the time	Essential

19. The officer must have a knowlege of the policies, procedures and organizational structure that affect manpower, personnel, training, and training device research and development and studies management.

Not applicable	Useful for background	Useful some of the time	Useful all of the time	Essential

Other Educational Skill Requirements:______________________________

____

____

____

A list of required Naval Postgraduate School courses leading to degree attainment and the XX33P sub-specialty is attached as Appendix A at the end of this questionnaire. Assuming you were starting the NPS Manpower Personnel Training Analysis curriculum today, but your crystal ball told you that upon graduation you would be going back to the job you are in now, rank the five most useful and five least useful courses this curriculum might provide for your job, considering the functional objectives that were listed in the previous section. (Please use only the letter preceding the course description.)

Most useful	Least useful
1. ________	1. ________
2. ________	2. ________
3. ________	3. ________
4. ________	4. ________
5. ________	5. ________

Do you feel you were sufficiently prepared for your current billet, whether by prior education, experience or combination of factors? (Circle one)

YES NO

I have the following education (all that apply):
B.A./B.S. in ____________________________
M.A./M.S. in ____________________________
Other ___________________________________

My undergraduate degree is from a
Civilian university _____ Service Academy _________

My graduate degree is from (answer all that apply):
Naval Postgraduate School ____
Civilian university ____
Not applicable ____

All your comments regarding any aspect of the XX33 subspecialty are of value. Please use the space below for any additional comments you may have:

THANK YOU SO VERY MUCH FOR YOUR ASSISTANCE

Kindly use the enclosed pre-addressed envelope to return the survey.

APPENDIX A

COURSE REQUIREMENTS; MANPOWER/PERSONNEL/TRAINING ANALYSIS (847)

(These courses are listed in the order of the present curriculum.)

A. Financial accounting (MN 2150): Study of basic accounting concepts and standards.

B. Economic Decision Making (MN 2031): Focuses on methods of national income determination, the consumption function, the multiplier, and the impact of fiscal and monetary policies.

C. Manpower Analysis (MN 3111): This course provides an introduction to the defense manpower system, focusing on current manpower, personnel and training analysis issues. It also provides a broad coverage of human behavior in the work situation with special emphasis on the problem of work in the Naval environment.

D. Mathematics for Management (MA 2300): Provides a mathematical basis for modern managerial tools and techniques. It includes elements of differential and integral calculus, sequences and series and an introduction to matrix algebra.

E. Managerial Accounting (MN 3161): Introduction to cost accounting, including overhead costing, job order and process systems, variable and absorption costing, and standard cost.

F. Microeconomic Theory (MN 3140): Determination of the allocation of resources and the composition of output. Consumer and Producer Choice Theory. Partial and general equilibrium analysis. Welfare economics. Applications to defense problems are emphasized.

G. Organizational Systems (MN 3105): Study of managing organizations in a dynamic environment. Emphasis is on managerial decision making, planning and control, organizational changes and their systemic impacts on organizational effectiveness and adaptation.

H. Statistical Analysis for Management I (OS 3105): Standard families of distributions, such as the binomial and normal. Standard topics of statistical inference for one and two variables are introduced in the settings of both hypothesis testing and confidence interval estimation. Uses MINITAB.

I. Public Policy Processes (MN 3172): A presentation by which resources are allocated to the production of goods in the Defense sector. Defense budget preparation, Presidential policy-making and management and Congressional budget action are considered and placed within the context of the theory of public goods.

J. Manpower Economics I (MN 3760): An introduction to the theoretical aspects of labor economics. Concepts covered include the supply of labor, the demand for labor, market wage determination, earnings equations, unemployment and income problems of women and minorities.

K. Managerial Communications Skills (MN 3333): This course treats communicating as an integral function of management. A competency-oriented course designed to enable each student to develop proficiency in those aspects of speaking, listening, writing, and reading that are particularly relevant to management.

L. Statistical Analysis for Management II (OS 3106): General study of linear models. It includes analysis of variance for one- and two-way models, linear and multiple regression , including such topics as curve fitting, residual analysis, stepwise regression, along with correlation analysis. Uses computer statistical packages for large data bases, such as SPSS and SAS.

M. Manpower Economics II (MN 4761): An application of the theoretical exposure in MN 3760. Recent applications of economic analysis to manpower, personnel, and training problems. Topics include econometric models of enlistment supply, reenlistment supply, earnings, equations; alternative retirement systems; alternative compensation systems.

N. Manpower Requirements Determination (OS 3702): Use of some of the tools of industrial engineering in the determination of the quantity and quality of manpower required in military systems. Applications for ship, squadron and shore manning are included.

O. Multivariate Manpower Data Analysis (MN 4110): Study of statistical methods for predicting job performance from entry data. Emphasis is on use and interpretation of correlational techniques, particularly multiple regression, applied to large personnel data sets. Development of computer skill in the use of analytical packages such as SPSS and SAS.

P. Operations Research for Management (OS 3006): A survey of problem solving techniques for operations research. Topics include decision theory, linear programming, models, project scheduling, inventory, queueing and simulation.

Q. Job Analysis and Personnel Training (MN 4117): Study of job analysis and its use in determining training requirements. Consideration of instructional systems development and training pipeline management. Attention to cost-benefit issues involving training in regard to selection, equipment design, changing job requirements, and career development.

R. Manpower Personnel Policy Analysis (MN 4106): Study and analysis of manpower/personnel policy alternatives with emphasis on identifying the trade-offs involved, the dynamic impact of major policy decision, and the short-term and long-term consequences of decisions. Review , use, and evaluation of tools to aid in selecting policy alternatives.

S. Manpower and Personnel Models (OS 4701): Use of the major types of manpower and personnel models for estimating the effects of policy changes on the personnel system. Topics include longitudinal and cross-section models, optimization models, data requirements validation. Applications in the form of current military models are included.

T. Management Policy (MN 4105): Study and analysis of complex managerial situations requiring comprehensive integrated decision making. Topics include operational and strategic planning, policy formulation, executive control,environmental adaptation, and management of change. Case studies in both the public and private sectors are emphasized.

U. Management Information Systems (IS 3183): Study of what an information system is, how the computer and other resources fit into the system, and management considerations involved in computer-based and other information systems. Study of computer and MIS concepts.

APPENDIX B

COMMENTS OF SURVEY RESPONDENTS

Most comments received from survey respondents were very well thought out. Additionally, the number of people who took the time to comment--35 out of 94--was extremely encouraging and enlightening. This interest is a good indicator that MPTA subspecialists will continue working toward community improvement. The majority of comments concerned the NPS curriculum and ideas about the MPTA community. Other comments involved the Educational Skill Requirements and Work Areas. The comments are provided to enhance the numerical analyses given elsewhere.

A. NPS CURRICULUM

"My basic job is to administer and develop policy for the Ship Manpower Requirements Program. As such, I am perplexed that whoever is responsible for course OS3702 has not contacted me in the two years I've been here. That course might be more relevant if it was up to date." --LCDR, 1110, no subspecialty

"Practical experience in taught subject matter. Common sense also fleet experience. Do not properly temper the thinking of majority of MPT grads." --LCDR, 1320, 0036S

"Basically I feel you don't study management--you do it. Some of the courses on analysis of info probably are useful if the job is doing analysis. However most of the courses seem to be filler to substitute for basic common sense." --LCDR, 1100, 0026G

"(Manpower is a long lead item.) Introduction of HARDMAN for MPT Requirements Determination on new starts (Navy wide implementation 4Q85) as a course at NPGS would probably eliminate need for some of the theoretical and generic MPT analysis courses." --CDR, 1310, 4044R

"The primary qualification for ship manpower requirement forecasting is warfare specialty qualifications and extensive fleet operating experience. Operational experience is far more important than PG school degree!" --CDR, 1110, 0033S

"Could use more training in dynamics of Navy enlisted strength planning, retention, and modeling in general." --LCDR, 1100, 9033P

"Courses should be taught according to the course description. My experience was when the prof deviated from the catalog description the value of the course diminished." --LT, 2300, 0033P

"Course should be included on the PPBS process at the CP-01 staff level--micro vs. macro." --CDR, 1320, 0036R

"Get officers with extensive Washington MPT experience to teach in the PG school manpower curriculum from the aspects of relevancy, currency, credibility, honesty, cynicism, politics, and military role model. Is that ambivalent enough?" --LCDR, 1110, 9036Q

"Financial Management in the Armed Forces should be a required course. Unfortunately not all course descriptions reflect what was actually taught when I attended NPS. Therefore, it is most difficult to objectively rate those courses that are least useful. Course in Navy manpower would be most useful. Thesis was excellent preparation for job." --CDR, 2900, 0033P

"NPGS is operating under some curriculum constraints: In order to award an accredited MS degree they have to include courses in accounting, economics, statistics, etc. that are really not required of the MPT analyst. Having graduated three years ago, the curriculum was still in the formative stages; courses were added/dropped during my tenure. It seems to have stabilized -- MN3333 is the only new course I noticed. While everything I learned was (generally) interesting and nice to know, I am very disappointed, in retrospect, with the fact that there are many things that I did not learn. My job is Military Manpower Requirements Determination. I work with POM, MPA change requests, SMD/NTP reviews, establishment/disestablishment of new commands and ROC/POE. I could have gone to a one week seminar and learned all the subjects that I learned at Monterey that are applicable to my job description. The above items are mentioned only in passing at Monterey. As I am an educated 'expert' in the MPTA field, I feel very stupid academically. The bottom line is we don't teach the practical things that MPT people need to know to do their jobs. We need to set up a 4000 series capstone seminar tailored for each service sponsor (USN, USA,USAF,etc.) that will teach the mechanics of 'how the system really works'." --LCDR, 1110, 0033P

"I would like to see more emphasis on industrial engineering--at least from my standpoint as a management analyst. My job is to manage and conduct efficiency review studies, management advisory studies, and staffing standards. To manage these things takes on the job training, you first need the basic tools to get the job done." --LT, 1100, no subspecialty

"At time when I attended NPS, curriculum scarcely addressed occupational task analysis used in developing occupational standards, PARS and NEC/NOC manuals. Too much emphasis on statistics and regression theory with little application to real world problems. Overall curriculum did expose me to different aspects of MPT with most emphasis in OPNAV arena and little focus on NAVMEC, staffing standards and occupational analysis." --LCDR, 1100, 0033P

"NPGS is quite removed from the trenches--the reality is of PCS constraints, flag intervention for the good of the 'budding CNO 0-5,' etc., etc. Just please come back to the fleet with a sense of humor and the knowledge that we are dealing in and with and for people--good young American kids who will give you their all every time. Your course outline frightens me -- I don't see any of that flavor sprinkled among the big fancy words." --CAPT, 1110, 2010P

"The micro/labor economics impacts every decision made in Washington. It is critical that officers understand the impact of their actions beyond their particular program." --LT, 1310, 0033P

"Need more exposure to Navy examples. Need profs who are familiar with Washington arena so that we get more realistic view of issues and accompanying procedural frustrations." --LT, 1100, 0033P

"The point is: quantitative techniques and the ability to manipulate computer data are absolutely essential! If you have a handle on these, then all else is simply common sense (or is learned best during your xx33 tour, not in a classroom)!" --LCDR, 1110, 9033Q

B. THE MPTA COMMUNITY

"The subspecialty is more applicable to the 5 JO billets in the division as they are tasked with the general and technical management of specific data bases. However, getting them filled with 1110's let alone subspecialists is next to impossible." --LCDR, 1110, no subspecialty

"The community is overpopulated with bureaucratic ticket punchers that lack the interest, initiative or ability to view their jobs as anything more than answering the mail." --LCDR, 1320, 0036S

"Ideally present billet could benefit from someone with a more sophisticated background in management theory. However, basic management skills such as guidance, counseling, human behavior/organization interaction, financial management, problem solving, systems analysis, etc. are adequate for job. Rumor control has it Assignment Officer billet to be recoded and appropriately so. Would be waste of manpower to use someone out of Monterey in job." --LCDR, 2900, 1910P

"This billet is subject to seasonal and yearly fluctuations in terms of its focus because the thrust of recruiting is very sensitive to market conditions. Changes in the nation's economy and the population of enlistment age eligible males have a pronounced effect on the degree of difficulty for recruiting. The techniques applied to the recruiting problem vary in accordance with the conditions prevailing at the time." --CDR, 1117, 9137S

"Actual knowledge of the activities, from having worked with them, is as important to the requirements determination process as understanding the NAVMEP program manuals. I am not a xx33 subspecialty. Although it would undoubtedly be an advantage to have a broader understanding of programs, theory, and interaction that a xx33 should have -- experience with the fleet has been the key factor in my job." --LCDR, 1310, no subspecialty

"Need to establish a hierarchical progression of 33 coded jobs based on paygrade requirements. Think this should be the case in all subspecialty codes. My organization has been trying to sort out the system starting with cleaning up NOBCs and then relating them to subspecialty codes - but progress has been slow. Also, guidance to the field is sketchy at best for those who think they need to code a billet but aren't sure whether it should be F,P,Q, (etc.) level. Believe the guidance is supplied to CINC level but is well guarded. Think this hampers the system in trying to derive valid billet requirements. With limited assets you want the best utilization of people. I'm not sure our system is working that way." --CDR, 1100, 0036F

"I'm sure you realize that the various MPT competencies are often extensively job related. In my case, for example, the skills/knowledge I acquired as POM Operations Manager in OP-01 (PPBS intensive) are only partially applicable to my current job. Obviously the depth of knowledge required for individuals in 'managerial' positions in any field leans more towards general management and leadership skills than towards technical competency." --CDR, 1320, 9033S

"Am presently assigned to the new NAVMEC organization - specifically as an OIC. NAVMEC determines the Navy's manpower requirements for SMD, SQMD and SHMD. SHMD is currently receiving a great deal of emphasis. All (7) of this detachment's officer billets are coded xx33, but it has yet to be assigned anyone with this subspecialty. My question to you is WHY NOT?? Surely we can use folks such as yourselves out here in the trenches right now!! --CDR, 1310, no subspecialty

"The MPTA concept is sound and fills a valid need within the DON. One practical problem however, is that it is relatively new and the power structure (e.g. Flags, 05/06) are not yet comfortable with the sound management concepts espoused in the program. This is especially true of the Medical Department. It is therefore essential that graduates of the program have some significant operational experience so that they can bridge the gap between academia and the real world and all those senior officers who have lived by the seat of their collective pants." --LCDR, 2300, 1800P

"MPTA graduates should receive, on a quarterly basis, a joint CNO/NPGS MPTA Newsletter detailing academic/policy information to keep graduates up to speed after they graduate. Due to the career path/detailing considerations in the 1110 (male) community it may be 3-5 years before the 'pay-back' tour comes about. MPTA graduates should go directly to a 33 coded billet for 2 years after graduation. That would put them ashore for a total of 3 and 1/2years (including NPGS) which is not excessive. The field is changing too rapidly to delay the pay-back. An alternative is to set up a refresher course at Monterey." --LCDR, 1110, 0033P

The MPT subspecialty is too broad to cover all the specific jobs people do in the Annex!! How can a person who just works on detailing or post-graduate quotas, C School plans, enlisted strength plans or community manager be a subspecialist and be eligible to move about in 33x billets? All the education, theory and way the business world does it just doesn't cut it with the Navy way." --CDR, 1100, no subspecialty

"This is a placement officer billet and is improperly coded 33P. Should be 36S." --CDR, 1310, 4044R

C. EDUCATIONAL SKILL REQUIREMENTS

"Occupational Analysis being a sub-field of Industrial Psychology requires an understanding of survey methodology and development from the human side rather than the Industrial Engineering approach of man machine interface, work audits, etc." --LCDR, 1110, 0025F

"Some of these items border on the ridiculous, e.g. show me anyone who has a grasp on everything of importance in item 12." --CAPT, 1110, 9036R

"(1) OPNAV policies are both written and implied. Can and will occur for political vice management based decisions. (2) Econometrics cannot exist purely within itself without regards for those items that Navy, alone, cannot control." --CDR, 1310, 4044R

"Thorough understanding of OPNAVINST 1000.16E. Also FYDP and all manpower data bases." --CAPT, 1110, 0023G

"Knowledge of political relationship of select House and Senate committees which govern Navy manpower policy direction." --CAPT, 1310, 0000P

"An understanding/appreciation of the Navy's/fleet's needs, moods, actions-reactions, etc. is an essential key to this job. Classroom learning can enable one to do the job but their understanding of/feel for people and their realtime and future reactions to policies is essential." --CAPT, 1310, 4044R

"The ability to write in plain, simple English. A thick skin. A sense of priority, and skill to re-prioritize quickly. A wonderful sense of humor. The common sense not to panic into a solution for expediency. Always remember -- the sailor comes first." --CAPT, 1110, 2010P

D. AREA OF WORK

"General administration (lots); task analysis (lots); resource (my own personnel) analysis (lots); employment of common sense (lots); Boot Camp type leadership (lots); counseling (lots)." --CAPT, 1110, 9036R

"8.3 and 2.1 are primary responsibilities of NAVMECDET. The conduct of these responsibilities will result in 1.2 and 2.3 NAMMOS has been involved in shore manpower requirements determination and mobilization requirements will be determined during manpower studies done by NAVMECDETs." --CDR, 1110, 0036P

"This billet,......., should be 33P coded. Assuming the job with some manpower background helped -- but I would have been much better prepared with a thorough grounding in the PPBS process and existing manpower models. NO ONE understands all the models and how they interface. We are at the point that manpower planning must be much more tightly managed to control growth in an endstrength constrained environment." --LCDR, 1110, 0036S

"Resolving the 'personnel crisis' at any given moment is the major work area. The second major area (not listed either) is educating juniors and seniors to work in the crazy system so it works for us and not against us." --CAPT,1110, 2010P

APPENDIX C

MATRIX OF COURSE REQUIREMENTS

MANPOWER/PERSONNEL TRAINING ANALYSIS (847)

MANAGEMENT FUNDAMENTALS	QTR 1	MN 2150 FINANCIAL ACCOUNTING	MN 2031 ECONOMIC DECISION MAKING	MN 3111 MANPOWER ANALYSIS	MA 2300 MATHEMATICS FOR MANAGEMENT
	QTR 2	MN 3161 MANAGERIAL ACCOUNTING	MN 3110 MICRO-ECONOMIC THEORY	MN 3105 ORGANIZATIONAL SYSTEMS	OS 3105 STATISTICAL ANALYSIS FOR MANAGEMENT I
GRADUATE PROGRAMS	QTR 3	MN 3172 PUBLIC POLICY PROCESSES	MN 3760 MANPOWER ECONOMICS I	MN 3333 MANAGERIAL COMMUNICATIONS SKILLS	OS3106 STATISTICAL ANALYSIS FOR MANAGEMENT II
	QTR 4	MN 4761 MANPOWER ECONOMICS II	OS 3702 MANPOWER REQUIREMENTS DETERMINATION	MN 4110 MULTIVARIATE MANPOWER DATA ANALYSIS	OS 3006 OPERATIONS RESEARCH FOR MANAGEMENT
	QTR 5	MN 0810 THESIS	MN 4117 JOB ANALYSIS AND PERSONNEL TRAINING	MN 4106 MANPOWER/ PERSONNEL POLICY ANALYSIS	OS 4701 MANPOWER AND PERSONNEL MODELS
	QTR 6	MN 0810 THESIS	MN 0810 THESIS	MN 4105 MANAGEMENT POLICY	IS 3183 MANAGEMENT INFORMATION SYSTEMS

APPENDIX D

COMMANDS AND ACTIVITIES WITH XX33 BILLETS

Chief of Naval Operations: OP-09, OP-11, OP-12, OP-13, OP-16, OP-90, OP-29, OP-39, OP-59

Commander, Naval Military Personnel Command

Director, Field Support Activity

Chief of Naval Education and Training

Commander in Chief, U.S. Atlantic Fleet

Commander, Submarine Force, U.S. Atlantic Fleet

Commander, Naval Surface Force, U.S. Atlantic Fleet

Commander, Naval Air Force, U.S. Atlantic Fleet

Commander in Chief, U.S. Pacific Fleet

Commander, Submarine Force, U.S. Pacific Fleet

Commander, Naval Surface Force, U.S. Pacific Fleet

Commander, Naval Air Force, U.S. Pacific Fleet

Commander, Naval Recruiting Command

Commander, Naval Reserve Force

Commander, Naval Medical Command

Commander, Naval Medical Command, Southeast Region

Naval Hospital: Camp Lejeune
Millington
Newport

Oakland
Orlando
Pensacola
Philadelphia
Portsmouth
San Diego

Naval Postgraduate School

Defense Systems Management College, Fort Belvoir Virginia

Navy Manpower Engineering Center, Norfolk, with Detachments at:

Jacksonville
Newport
Pearl Harbor
Pensacola
San Diego
San Francisco
Washington, D.C.

APPENDIX E

DATA SET

```
DATA THESIS;
    INPUT #1    CARDNO1       1
                CODE        3-5
                RANK          8
                DESIG       10-13
                PCODE    $  15-19
                SCODE    $  21-25
                BCODE    $  27-31
                TOURS       33
                AREAQ1      35-37
                AREAQ2      39-41
                AREAQ3      43-45
                AREAQ4      47-49
                AREAQ5      51-53
          #2    CARDNO2       1
                CODE        3-5
                @ 7 (SKILL01-SKILL22)  (2.)
          #3    CARDNO3       1
                CODE        3-5
                @ 7 (ESR01-ESR19)  (2.)
          #4    CARDNO4       1
                CODE        3-5
                ACOURSE1 $    7
                ACOURSE2 $    9
                ACOURSE3 $   11
                ACOURSE4 $   13
                ACOURSE5 $   15
                ZCOURSE1 $   17
                ZCOURSE2 $   19
                ZCOURSE3 $   21
                ZCOURSE4 $   23
                ZCOURSE5 $   25
                PREPARED $   27
                EDUC         29
                UDEGREE  $   35
                GDEGREE  $   37;
    LABEL       DESIG=DESIGNATOR
                PCODE=PRIMARY OFFICER SUBSPECIALTY CODE
                SCODE=SECONDARY OFFICER SUBSPECIALTY CODE
                BCODE=BILLET CODE
                ACOURSE1=FIRST MOST USEFUL COURSE
                ACOURSE2=SECOND MOST USEFUL COURSE
                ACOURSE3=THIRD MOST USEFUL COURSE
                ACOURSE4=FOURTH MOST USEFUL COURSE
                ACOURSE5=FIFTH MOST USEFUL COURSE
                ZCOURSE1=FIRST LEAST USEFUL COURSE
                ZCOURSE2=SECOND LEAST USEFUL COURSE
                ZCOURSE3=THIRD LEAST USEFUL COURSE
                ZCOURSE4=FOURTH LEAST USEFUL COURSE
                ZCOURSE5=FIFTH LEASTS USEFUL COURSE
                EDUC= EDUCATIONAL LEVEL
                UDEGREE=UNDERGRADUATE DEGREE AWARDER
                GDEGREE=GRADUATE DEGREE AWARDER;
    IF AREAQ1 EQ 999 THEN AREAQ1= . ;
    IF AREAQ2 EQ 999 THEN AREAQ2= . ;
    IF AREAQ3 EQ 999 THEN AREAQ3= . ;
    IF AREAQ4 EQ 999 THEN AREAQ4= . ;
    IF AREAQ5 EQ 999 THEN AREAQ5= . ;
      OPTIONS LINESIZE=80;
      CARDS:
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2 001 2 1 3 3 4 1 2 2 4 1 3 2 2 4 3 4 3 4 2 1 2 1
3 001 4 4 4 3 2 3 5 2 2 3 2 1 4 2 2 2 1 4 2
4 001 N I C I K A B E F J Y 1     C .
1 002  6 1110 0036Q 9999X 0036Q 3 020 010 024 040 150
2 002 3 3 3 3 4 3 3 3 3 1 3 2 3 1 1 1 2 3 1 2 2 2
3 002 3 4 4 2 3 2 3 2 4 3 3 4 2 4 2 4 2 2 2
4 002 . . . . . . . . . . Y 1     S .
1 003  4 1110 0025F 9999X 0033P 0 071 072 022 999 999
2 003 2 1 3 4 3 1 4 4 4 2 2 2 2 1 2 3 3 1 1 3 2 1
3 003 3 3 2 3 2 2 3 2 2 4 3 3 5 2 2 2 1 1 2
4 003 Q C L P C A B F E I Y 2     C C
1 004  3 1105 9999X 9999X 0033S 0 083 071 084 073 152
2 004 4 1 2 4 3 1 4 4 1 1 1 1 1 1 1 4 1 1 1 1 4 1
3 004 5 5 4 2 5 1 2 5 5 2 4 5 5 5 2 5 1 4 4
4 004 N H I C O A B G J U N 1     C .
1 005  4 1320 0036S 9999X 0033S 1 070 071 021 022 140
2 005 2 1 3 3 4 1 4 1 1 1 3 2 2 4 2 3 4 4 1 1 1 1
3 005 5 4 5 2 5 3 5 4 3 3 3 5 3 5 2 9 2 5 2
4 005 H Q U P R A I K J . Y 1     C .
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3 006 5 4 3 3 4 1 5 5 3 1 2 2 1 3 2 2 2 2 2
4 006 C G K T U F H J M N Y 2     C C
1 007  4 1300 9036S 9999X 9999X 1 083 082 081 084 060
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4 007 N R U L H A B J D E Y 1     C .
1 008  3 2300 1800E 9999X 0033P 0 160 010 152 170 084
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3 008 4 4 4 2 3 1 3 2 1 2 1 1 1 1 1 1 1 2 1
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4 009 U S T L C . . . . . . 2     S C
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3 012 5 5 4 2 3 2 1 5 5 4 3 5 4 2 2 3 2 4 3
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4 013 I N C K O F E M I J Y 1     C .
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4 016 R S N M I A B C E F Y 1     C .
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4 017 K U T Q R A B E F J Y 2     C C
```

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3 018 4 4 5 2 3 3 4 2 4 2 3 3 3 4 1 3 3 3 4
4 018 C P R T G A B F Q U Y 2     C C
1 019  5 1100 0036F 9999X 0036P 2 071 012 023 999 999
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3 019 5 5 4 4 4 3 4 5 3 3 3 4 5 4 5 5 2 5 5
4 019 Q I K L G B J M F . Y 2     C C
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4 020 C F J H L A E N P G Y 2     C N
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3 021 4 4 4 2 2 2 3 4 4 2 4 3 2 2 2 2 2 3 4
4 021 N G U K C T Q C D B . 1     C .
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3 022 5 4 5 5 4 5 5 4 5 3 4 3 2 5 2 5 5 4 4
4 022 P H I L S F R G A . Y 2     C N
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2 023 3 1 3 4 4 3 3 4 2 1 1 3 1 3 3 4 1 3 2 3 3 3
3 023 4 4 5 3 3 3 3 2 4 4 4 1 5 4 2 5 3 3 5
4 023 N R S F C D J M O K Y 1     C .
1 024  4 1100 9033P 0037S 0033P 0 024 040 010 999 999
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3 024 2 4 3 2 5 3 3 3 5 5 5 5 2 5 4 4 5 4 3
4 024 S H I M O A D T . . Y 2     C N
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3 025 5 5 4 3 3 4 5 5 4 4 4 4 4 4 2 4 3 3 3
4 025 G K H N U F A B P S Y 2     C C
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3 026 3 4 4 2 3 3 5 5 5 2 5 4 5 5 5 5 2 5 2
4 026 N C K Q U F J I P B Y 1     C .
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3 027 5 4 3 3 3 2 4 4 3 2 4 3 1 2 2 3 3 5 3
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